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Kristeller's Improved Obstetric Forceps—("The Spring Forceps.") (Read before the New York Medico-Chirurgical College.) By L. Elsberg, A.M., M.D.

Mr. Chairman and Fellows—I desire to call your attention to an *Improved Obstetrical Forceps.* That to do seems to involve temerity, as the undertaking must be deemed hazardous, I am aware. It is true, since the ignominious Chamberlen's Grand Invention has come into general use, every year, on an average, has brought forth at least one modification of the instrument; and, as Ramsbotham says, "whim, caprice and fancy (and perhaps also some little lurking desire for professional distinction) have suggested an infinite variety of forceps," but few of which can really be called improvements. Indeed, even to look at the multitudinous forms and dimensions devised, "is enough," —to use the language of our own Meigs—"to excite a smile at the ambition which proposes to build up a solid reputation, by rather spoiling than improving an implement already perhaps perfect." And Keating, too, is right, inasmuch as "every accoucheur of any eminence"—and many a one without—"has deemed it essential to his reputation to improve this instrument." I hasten, therefore, both to assure you that the improvement I wish to present to your notice is a

real one, and to state at once that I am not its inventor. No essential change has been made in the forceps proper, *i. e.*, in the cochlea, nor in the lock. The improvement consists in providing the handles with dynamometrical spiral springs, for the purpose of measuring the amount of tractile force exerted in the instrumental delivery. The inventor of this truly ingenious contrivance is *Dr. Kristeller*, of Berlin, whose communication thereof to the Obstetrical Society of Berlin on the 22d of November last, is published in the "*Monatsschrift für Geburtskunde und Frauenkrankheiten*," for March, 1861. I have modified it in several minor particulars, to render its practical employment more convenient. It can be attached to the handles of almost any form of forceps, and is manufactured by the instrument-makers, *Otto & Reynders*, of this city.

Hitherto, as Dr. K. justly remarks, the degree of traction could be measured only by the subjective feeling of the operator; and indefinite expressions formed the scale. Thus, "gentle," "slight," "moderate," "considerable," "strong," "exhausting," and the like, are the words by which operators distinguish in their own mind the difference in degree of an extractive effort, and by which the text-books endeavor to describe and teach it. Now, such expressions have, of course, no absolute value. They must be considered in relation to the personal strength of the operator, and to the bodily and mental condition of freshness and excitement, or exhaustion and depression, in which he accidentally happens to be at the time of the operation. Nay, more even: experience, and peculiarities of individual practice, will modify their appreciation; for the physician who practices, for instance, in the country, in a less cultivated district, or who sees more delayed and aggravated cases, will certainly have different ideas as to what is an "easy," or a "powerful and difficult" forceps extraction, than the one who practices in the city, etc.

The introduction of an accurate objective "force measurer," in forceps operations, is, in my estimation, of both scientific and practical importance. That the mechanical arrangement, as here exhibited, is perfect in every respect, without any drawbacks in its use, I do not affirm. Dr. Kristeller's is the first forceps dynamometer ever devised, and I trust that its employment will in the future point out imperfections where they still exist, and lead to improvements where they are needed. But this instrument certainly answers the purpose sufficiently to deserve the favorable notice of all who have the advancement and interests of the science, or the art, of obstetrics at heart, and the preparation by me of this account, which I render almost

entirely in the inventor's own words, and its presentation to the College, needs, I hope, no apology.

Description of the Instrument.—The handle of each blade consists of two parts; one movable, the other fixed. The fixed part (*T*) is a strong steel plate, which forms the continuation of the cochlea. The movable part (*F*) is a half-cylinder of brass, the plane surface of which is applied to the outer side of the steel plate in such a way that the half-cylinder can freely glide up and down the plate, but can move in no other direction. Above, the half-cylinder is closed by a notched projection, (*A* and *B*,) intended to give support to the fingers of the operator; below, the cylinder terminates in the ordinary knob, (*C* and *D*.) Within the half-cylinder lies a strong, steel, spiral spring, riveted above to the notched prominences, over which the fingers are to be hooked during traction, and below to a bracket, (*E*,) which is fixed immovably to the steel plate. When the operator makes traction, his right hand upon the prominences, and the left upon the shafts of the handles, the movable half-cylinders are drawn down, and the spiral springs are compressed until their elasticity and the force employed neutralize each other. A graduated scale, (*h i*,) attached to the lower portion of the handle, indicates the amount of such compression, or, in pounds, the force exerted.

(The spaces on the forceps here exhibited, however, mark millimetres, but the power exercised has been calculated by kilogrammes, and thence by pounds. Thus, the traction which compresses the springs of this forceps 16 millimetres implies a pulling power of 30 kilogrammes, or about 80 pounds; compression to the extent of

										Troy.					
1	millimetre	indicates	a	power	of	5	kilograms,	=	13	lb.	4	oz.	6	dr.	10 gr.
2	"	"	"	"		7½	"	=	20	"	1	"	1	"	15 "
3	"	"	"	"		10	"	=	26	"	9	"	4	"	20 "
5	"	"	"	"		12½	"	=	33	"	5	"	7	"	25 "
7	"	"	"	"		15	"	=	40	"	2	"	2	"	30 "
8	"	"	"	"		17½	"	=	46	"	10	"	5	"	35 "
10	"	"	"	"		20	"	=	53	"	7	"	0	"	40 "
11	"	"	"	"		22½	"	=	60	"	3	"	3	"	45 "
12	"	"	"	"		25	"	=	66	"	11	"	6	"	50 "
14	"	"	"	"		27½	"	=	73	"	8	"	1	"	55 "
16	"	"	"	"		30	"	=	80	"	4	"	5	"	0 "
18	"	"	"	"		32½	"	=	87	"	1	"	1	"	5 "
20	"	"	"	"		35	"	=	93	"	9	"	3	"	10 "
21	"	"	"	"		37½	"	=	100	"	5	"	6	"	15 "
22	"	"	"	"		40	"	=	107	"	2	"	1	"	20 ")

On the left blade there is a second scale, (*k l*,) to which a brass

plate (*o p*) with a projecting point (*o*) is adapted in the manner of a nonius, to serve as the index for the maximal force of the traction. The plate glides down along the scale just as the half-cylinder moves down; but when the traction is diminished it does not move up again, but remains stationary at the lowest point, thus making the maximum power exerted.

Whenever the circumstances permit, the increase and diminution of extractive power can be observed on the scale (*h i*) between the separated fingers, or below the hand, during the effort. Where such constant observation is impossible, the other scale indicates, after one or more tractions, what has been the greatest force exerted. After noting the maximum power, the index must of course be pushed back to the zero point.

It suffices to attach a scale on one blade only, as both sides must indicate the same power. (This must of course not be lost sight of in determining the correspondence between the millimetre spaces and weights; *i. e*, care must be taken to have both handles equally pulled down.)

Each branch of the forceps is provided with a stop, (*z*,) a little bolt that can be pushed by means of a knob (*s*) through both the movable and fixed parts, firmly uniting them, and thus abolishing the dynamometric power of the instrument. By this means the blades can at once be converted into an ordinary obstetric forceps. The stop of the right branch is above, that of the left below, and both can be opened and shut with great ease with the thumb and index finger.

The cochlea of the instrument here exhibited has centimetre marks, deeply enough cut into the metal to indicate to the touch the spaces through which the forceps moves in its passage from the pelvis. The weight of the whole forceps is about 1⅛ pound.

Explanation of the Figures.—Fig. I., view of the forceps, a little less than half the natural size. *F*, movable part of the handle. *T T*, continuation of the cochlea. *h i*, upper scale. *k l*, lower scale. *o p*, index of the maximum force of the traction, in its position represented as showing 10 millimetres. *z*, stopping-bar; *s*, its knob. *y*, opening in the movable part of the handle, to receive the bar *z*. *x x*, centimetre marks on the cochlea.

Fig. II., section to show the internal mechanism of the instrument. The fixed portion of the handle, T T, has a slit from *u* to *v*. In this opening is placed the brass button, *q*, which is firmly attached to the half-cylinder, *F*, on one side, and to the brass plates, *m n*, on the other. To show the parts better, they are drawn a little apart from

each other: *in natura*, *m n*, as well as *F*, are closely united to T T, so that the sliding motion of *F* along T T is insured. *r* is a button similar to *q*, and *o p* a brass plate like *m n*. But *r* is *not united* with *F*. *r* also slides in *u v*, and is moved when *u* pushes against *o*.

Fig. I.

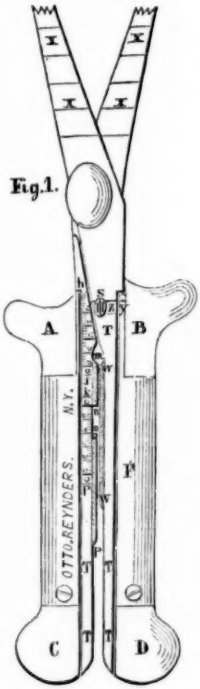
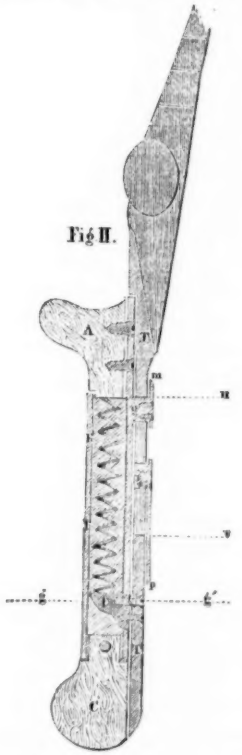


Fig. II.



While *m n* is brought back to its place by the spiral spring, *o p* remains stationary at the lowest point to which it is pushed, and thus indicates the maximum power. *w w*, in Fig. I., is a brass plate like *m n*, firmly united to the half-cylinder, *F*. When *n* and *o* touch, *m n o p* forms as long a bar as *w w*. E is the bracket screwed to T.

Fig. III.

Fig. III. is intended to show how the half-cylinder, F, incloses the bracket, E, and how it moves.

The cut represents a section of the handle in the line *gg'* of Fig. II. T, E, and F refer to the same part as above. This is nearly full size.

It should be observed, these cuts were finished before the slight modifications, which the apparatus has undergone, had been made.

Use of the Instrument for the Description of Forceps Operations.—In view of the high position as an exact science which Obstetrics is capable of attaining, every method of enlarging our mathematical knowledge and appreciation of the mechanism of labor and obstetrical operations is entitled to attention. It is of the utmost importance to be able to substitute for vague and indefinite notions clear and definite perceptions; and in no way can this be accomplished with more certainty than by referring, in proper cases, indistinct ideas and expressions to the exact standard of numbers, the meaning of which is unchangeable, and the values of which any one can at any time make clear to his own mind by actual experiment. Especially must it be of advantage to be able to define, in accordance with an objective standard, the difference in degree of so important an action in midwifery as the forceps operation.

Having effected a forceps delivery, how—let us inquire—can we determine or describe the difficulty attending it? We can describe, first, the dynamic and mechanical circumstances of the case; secondly, the number and duration of the tractions made; and thirdly, endeavor to estimate according to our subjective sensations the amount of force employed in the operation.

As to the first point, in the account of the obstacles to natural labor, it is mainly the relation in space of pelvis and child, that we can denote with numbers. But the measurement of this relationship does not suffice to define the difficulty of a forceps operation. There is wanting *one* factor, namely, the compressibility of the head—a link of so much importance, that it may safely be affirmed that, as long as we have no means of taking it into the account, the numerical notation of pelvic and head measurements does not possess its full, or any absolute, value; for it is plain that only the combination of these measurements with the amount of compressibility can give the true result as to the degree or amount of obstacle present.

As far as the second point is concerned, we certainly can render an account of our efforts at extraction, in reference to their number and duration. Indeed, many obstetrical authorities actually denote the difficulty of any forceps operation by the number of tractions required, or lay down as a limit to justifiable efforts a certain number, not to be exceeded. The measurement of the time occupied with each traction has not been taken so much into consideration. But do both circumstances combined, suffice to define the difficulty of a

forceps operation? Assuredly not! Both depend on the state, at the time, of strength of the operator; for is it not self-evident that a weak or tired operator produces the same effect as to extraction by a greater number of tractions—each probably, too, lasting a shorter length of time—than a stronger man?

Finally, as regards the estimation of how much strength has been employed in the operation, it must be admitted that the vague expressions hitherto in use do not answer for a scientific definition, and that the very estimation is attended with numerous sources of error. To estimate a traction in a horizontal direction, and denote its strength in pounds, transcends the ordinary experience of any man; and numerous experiments with the dynamometer have proved the utter unreliability of subjective sensation, or estimation, after even long-continued practice. The exertion felt, and believed to have been made, bears no constant proportion to the traction actually objectively accomplished, nor is the maximum value of our tractile power more constant. *The only exact means of measuring a traction is the introduction of a dynamometer between ourselves and the object upon which our tractile power is exerted.*

Accurately to determine the character of a forceps operation, then, we must know, besides the dynamic and mechanical circumstances of the labor, and besides the number and duration of the individual tractions, the dynamometrical amount of tractile power which the operation required. So described, its essential features are defined; and only thus defined, can it become the subject of scientific investi gation and communication; *i. e.*, of methodized knowledge.

There is one point, however, which we have not yet taken into consideration: we cannot but admit that the measurement of the traction does not define the *whole extent* of the mechanism of labor. There still remain *unmeasured* the actions that result from our making use of the leverage of the united blades. Now, these transverse, pendulum, and rotatory movements are in reality but little more than means of improving the position, and should be, perhaps, far more sparingly employed than they are. But even the most ardent advocates of the constant applicability of these lever movements must admit, first, that these movements are always made with more or less tractile force; and secondly, that traction is, after all, the most important action in the mechanism of the operation, and that the main exertion of the operator is expended on the performance of this action. The proposition that we have laid down remains, therefore, unchanged: The measurement of the traction power defines the diffi-

culty of a forceps operation in its essential characters; and the figures thus obtained are of great importance in the scientific study of the mechanism of the operation.

Practical Use of the Instrument.—Having considered the use of the dynamometer from a scientific point of view, *i. e.* as far as regards the theory and description of forceps operations, let us see if it is not also of practical use. One of the highest obstetrical authorities in Germany and in the world, W. J. SCHMIDT, while describing the dangers of violence in the operation, says: "Every practitioner who uses the forceps should accurately know the amount of power at his service." (Heidelberger Klin. Annalen, Bd. I., p. 69.) Should he, then, we must ask, not gladly avail himself of means by which he can at any time find out the exact amount of power exercised? To the young practitioner, especially, the spring forceps under consideration will prove a great desideratum: it not only shows him the force expended, but offers also the best means of learning to make the traction efficiently and *secundum artem.* "The effort at extraction should rise slowly and not too high; for a while steadily remain at the same height, and again slowly sink. In this way it best imitates a labor-pain; and such traction does not interfere with the natural mechanism of labor, for with it the head can freely move in the axis of the pelvis." Now this accrescence and decrescence of traction can be produced accurately and with certainty with the use of the index, and its proper performance is materially aided at the beginning as well as termination of the traction by the elasticity of the spiral springs, which must serve to diminish, to some extent, the injurious shock of jerking movements.

But the most experienced may also derive benefit from the knowledge of the amount of tractile power he is exerting. The scale may serve not only to warn him from employing too much force, and therefore violence, but in difficult cases to give indications of great importance in the progress of the operation.

As to the first advantage, it hardly admits of a doubt that many an injury to the mother, aye, even many a fatal issue, would not have occurred, if the operator had realized the amount of force he used. We must recollect that the iron instrument can impart no sensation to our hand of any injury that may be done the woman; and do we not know that forcible attempts, violent efforts, may bruise, may lacerate, may destroy? Should there, then, be no limit? One of the Fellows of this College, an eminent obstetrician, said to me but recently, he "pulled till I (he) got the child out;" but is there really no

limit to be assigned to the violence to the soft parts which this necessarily implies? Again to cite SCHMIDT: "Should everything depend upon the individual strength of the operator, who may, perhaps, triumphantly with the forceps extract a dead child, while the delivered woman dies?" *How great the force is that can be exercised* appears from the fact that I, whose bodily strength is certainly not more than the average, can, with exertion, accomplish a traction of 150–160 pounds. *Experience, it is to be hoped, will in time furnish certain Warning-Numbers beyond which the conscientious operator should go only after carefully and accurately considering all the circumstances of the case. Such Warning-Numbers are the more needed when anæsthetics suppress the Warning-Cries of the endangered parturient.*

Again, from comparing the traction force exerted with what it accomplishes, that is, by determining whether, how, and how much the head is moved, certain indications may be derived. (In this connection I wish, *en parenthèse*, again to refer to an auxiliary method of measuring the outward movement of the head by centimetre marks on the fenestra, already mentioned in the description of Kristeller's instrument.) If it is found that the head is coming, the amount of traction should be endeavored to be, as much as may be, diminished, for *the least possible force requisite to accomplish the extraction is the one we should aim to employ.* When no movement of the head occurs with say 45–50 pounds steady traction, the operator should diligently anew inquire into the case, to see whether no dynamic circumstances exist that first require other therapeutical means; whether the position had not first better be improved; whether the traction must not perhaps be made in a somewhat altered direction, as would be the case, for instance, if an inclination of the anterior wall of the pelvis existed, etc. Another circumstance that the operator should well weigh is, whether his individual strength suffices for the necessities of the case, or whether, tired out by previous exertions, he does not in the continuance of the operation bring less available force to bear than in the beginning; it is evident that if in a number of tractions properly performed, the expenditure of 50 pounds power has been fruitless, the tired operator need not expect to be successful with 45 or 40 pounds, which, indeed, can then accomplish only protraction and useless contusion of the soft parts. In such a case the indication is to desist, for a while, from the operation, to gather new strength, or if there is danger in delay, to let an assistant take the operator's place. Let not any one think that he could recognize the giving out of his strength and a difference of execution between 50 and 45 pounds, without independent

measurement. A man tired out and affected by the length of time the operation has lasted, and the importance of the case, cannot estimate by his subjective feelings even the *more* or *less* of what he objectively accomplishes. It is true, a man ever so tired may, by a sudden or short jerk, make a maximum pull far above the number of pounds named. But such jerking does not constitute a proper forceps traction, and is always dangerous. Manipulation, according to the rules which the most enlightened experience has established, is alone admissible; a proper traction requires the exercise of steady power, and for this 50 pounds is no very small figure. The clinical employment of the dynamometer certainly proves that to perform for any length of time proper forceps tractions of 50 pounds steady power, requires full strength and freshness; and that tractions of 60–70 pounds indicate a quite difficult forceps delivery.

On a Disadvantage arising from the ordinary Construction of Lateral Prominences on the Forceps Handle.—Incidentally I wish now to call attention to a difference in the position of the notched prominences on the two handles. This constitutes an improvement applicable not only to this forceps, but to all such as have, below the lock, any contrivance, either notches like this, or rings like Bedford's and others, to give purchase to the index and middle fingers during the extraction. The objection to the ordinary mode of construction was discovered by the use of the dynamometer, and the improvement, or at least the knowledge of the objection, and the possibility therefore of avoiding it, is justly to be regarded as one of the practical advantages resulting from the invention.

In experimenting with the spring forceps, with prominences as ordinarily placed, Kristeller soon observed that the spiral spring in the handle of the left branch (upon which the index finger acted) was pressed together eight millimetres before that on the other side was acted on at all, and that it remained eight millimetres ahead during the whole traction. Now, since this space here corresponds to a power of about 24 pounds, it is evident that a tractile power of 12 pounds was acting on the left blade before the right was influenced. Such a condition must have the following injurious effects on the mechanism of the operation:

1. The long axis of the forceps is pushed out of the line of conduction through the pelvis. To prove this, it is only necessary to freely suspend the forceps perpendicularly, and to load the left prominence with 12 pounds and the right with no pound. The turning of the handle towards the right side will be evident enough.

2. A slight lever action of the combined cochlea results with the turning of the head on the axis of a straight diameter of the pelvis.

3. A greater friction of the right fenestrum against the right side of the mother ensues.

This injurious condition is not only permanent in itself, but becomes proportionally increased, the stronger a tractile force is exerted.

The operator, of course, *in praxi*, corrects the deflection, by pulling the axis of the forceps back again into the line of proper direction of the traction; but it is evident that, the correction being made with the left hand, the latter must expend the more power on this lateral pulling the greater the traction is that is made with the right hand, and thus there is produced a counteraction between the right and left hands, which causes a loss of power, and may possibly lead also to a greater compression of the head, than is either necessary or useful. On reflecting as to the cause of this difference of action on the right and left blades, it was found to depend upon the fact that the first phalanx of the index is about 8 millimetres shorter than that of the middle finger. To remedy the trouble, the lateral projection of the right blade was placed 8 millimetres higher up than that of the left, so as to adapt the position of the prominences to the anatomical relations of the hand; after which change, both blades were equally acted on. Now, as this deflection occurs with all forceps that have supports for these two fingers placed at equal height, (for although the ordinary forceps does not indicate it, like the dynamometric spring forceps, yet actually it exists,) it is suggested either that in all these instruments the right prominence be raised 8 millimetres; or else that, in using them, the middle finger be laid over the lock between the two cochlea, and the index and ring fingers, which are of about the same length, be laid over the projections, as *Martin* has recommended.

Here I wish to record, also, an objection that suggested itself to me, on my first acquaintance with the spring forceps. Early taught by the *Nestor of American obstetrics* to place the middle finger over the joint, and to keep the index finger always in contact with the child's head, *so that slipping of the instrument could impossibly occur unnoticed*, I would not be reconciled to the use of an instrument that did not admit of taking this wise precaution, because all traction must be applied below the lock. But the objection vanished with trials of the dynamometer; especially as—if, from circumstances in the application or locking, to take the precaution be deemed particularly

necessary in any case—the instrument is only thereby at once converted into the ordinary forceps.

Use of the Instrument for the Differential Diagnosis of the Indication of Forceps and Cephalotryptor.—The advantages of a dynamometric apparatus for describing and for performing forceps operations have been sufficiently dwelt upon. Whether or not I have already convinced you that this addition to the handles of the instrument is "*more than a scientific toy*," and the results that may be expected to follow its employment *more than* "*theoretical data*" *and* "*mere matter of curiosity*," let us now turn to the question, Can it assist us, in difficult and doubtful cases, to determine the time when the forceps must be abandoned for the cephalotryptor? In discussing this question we shall regard the forceps as an instrument for extracting, only, and the cephalotryptor as an instrument for forcibly lessening the volume before extracting, the fœtal head, whether the latter be presenting or coming last, whether turning has preceded or not.

The means of determining whether cephalotrypsy must be performed are—

First, measurement of the pelvis. This is undoubtedly the most valuable means we at present possess; we can employ it both previous to, and, to a certain extent, also during the progress of parturition, and attain with it pretty exact results. Of great importance, however, are also the other factors on which the mechanism of labor depends; viz.: as to the mother, deformation or inclination of the walls of the pelvis, and dynamic and mechanical condition of the soft parts; as to the child, position of the head, its size, form, and compressibility. The measurement of some of these factors is very difficult, as, for instance, the circumstances relating to inclination of the pelvis; of others frequently quite impossible, as, for instance, the size of the fœtal head; while for some of them there is as yet no standard of measurement at all, as, for instance, for the condition and behavior of the soft parts of the mother, or for the compressibility of the head. Besides all these means of determining between forceps and cephalotryptor, there is the forceps itself. For the operator must prognosticate from the success of his tractions, whether he can overcome the obstacle to delivery with the forceps, or whether the cephalotryptor must be employed. In other words, the forceps is here no more an instrument for extraction than for sounding, as it were; for measuring the extent of the obstacle to delivery. It is, alas! but too true that the distinction between these two uses of the forceps is not always made. There are, 'tis true, operators who go

to work with force and violence from beginning to end, "in whose eyes the parturient woman is but a machine on which a certain mechanical labor is to be performed, who know no higher aim of the forceps operation than the accomplishment of their work, without regard to the victims that are slain, and without conception of a worthier prize." A collection of the contusions, the mutilations and the slaughters produced by too long-continued, or too strenuously forcible forceps-pulling, would doubtless prove one of the darkest pages in the history of medical malpractice.

It is generally believed that with the smallest diameter of the pelvis reduced to from $2\frac{1}{2}$ to $3\frac{1}{4}$ inches, the cephalotryptor will have in most cases to be had recourse to, while with the diameter from $3\frac{1}{4}$ to $3\frac{3}{4}$ inches, the forceps mostly suffices; the other factors to be of course duly taken into consideration in every case. But these other factors are estimated by uncertain, inaccurate, and ambiguous valuation only, as hard, tight, tense, rigid, soft, lax, dilatable, etc. Have many obstetricians ever reflected why the measurement of the pelvis is so predominant in pointing to the indication? Is the dimension of the pelvis the most important factor in the realization of the obstacle to delivery, or is the pelvis that factor that must specially receive therapeutical or operative aid? Neither of the latter questions can be answered affirmatively; for, the size and other physical relations of the head, the manner of its presentation and position, are of just as much importance as the condition of the pelvis. There are authenticated reports that compressible heads, at term, have been brought forth without sustaining any injury, by unassisted nature, where the smallest pelvic diameter was only $2\frac{3}{4}$ inches; it has often occurred that the same woman is naturally delivered, *per vias naturales*, of a living child, after having previously had to have the child removed by embryotomy, on account of too small pelvic diameter; and finally, it is well known that very large heads, or such with hard bones and tight sutures, or heads in certain malpositions, have rendered perforation imperative, even with normal dimensions of the pelvis. It is evident, therefore, that the head is as important an item, in the calculation, as the pelvis. Besides, the head is the very part to which we directly apply our therapeutical measures, whether we "wiredraw" it with forceps, transfix it with trepan and perforator, break it with osteotome, crush it with cephalotribe, or remove it with embryotomy-forceps, or hook or crotchet. Aye, if we could but devise a way to measure the size and compressibility of the head during labor, what a step in advance would obstetricy make! and, it

is plain, the dimensions of the pelvis owe their importance simply to the fact that *they can be measured, and their mechanical influence determined and expressed by a clear, exact, and unmodifiable number.*

At the bedside, however, what conscientious and thinking physician allows himself to be always guided, in the selection of his obstetrical operation, entirely by a knowledge—even if it be the most accurate—of the dimensions of the pelvis? Does he not, in doubtful cases, first try his forceps? He tries it with all possible precaution; he tries it, in the manner before alluded to, as a sound, as an apparatus to measure the hindrance to delivery. But surely he will never perforate or crush a child's head; never perform what Ramsbotham calls "this dire, this terrible, this destructive and heart-rending operation," until his efforts with the forceps have convinced him that the extent of the obstacle to delivery is such that the forceps cannot, in that particular case, overcome it. "In these cases," says Meigs, "the operator, who alone can estimate the degree of force he employs, is the sole judge as to whether that force is too great to be compatible with the safety of the woman." And what, we ask, has the operator upon which to base judgment of such grave importance? Naught but his subjective notion, his vague idea of the amount of force believed to have been brought to bear in making his efforts. How uncertain these data are, has been shown before; *here the spring forceps now comes efficiently to our aid.* Its dynamometer accurately indicates the power exerted; and but one question remains: Does it thereby also designate the extent of the obstacle to delivery?

Nature is to expel, or the obstetrician to extract, the child's head through the mother's pelvis, or rather, genital canal. The mechanical expression of all the effects resulting from the active antagonism of the expelling (respectively extracting) forces and the resisting forces, is the friction between the head and the channel through which it is to move. This friction may be the resultant of the most diverse mechanical and dynamic causes; as, for instance, inflammation and spasmodic action of the uterus, narrowness of the pelvis, inflammation, tightness, dryness of the vagina and external genitalia, tumors of various kinds and in various locations, faulty position, size, hardness, swelling of the head, etc., etc. But of whatever nature the cause or causes in any case may be, and whatever other therapeutical or operative means may be necessary to overcome the existing conditions, it is evident that *the result of all concurring circumstances, the final expression of all the forces concerned, as opposed to the expulsive*

power of the uterus, or the tractile power of the extracting instrument, is friction between the child's head and genital canal.

How can this friction be measured?

Whenever a body, like the child's head, is to be moved through a hollow, like the genital canal, the friction present, *i. e*, the resistance met with, is expressed by a weight which just suffices to effect the moving through, *i. e.*, by a power that overcomes the friction. If, for instance, in the way of experiment, we should apply, in proper manner, to the unborn fœtus of a woman who had died in labor, weights that had gradually reached forty pounds, and this weight, we should find, was just sufficient to bring forth the fœtus, the friction, *i. e.*, the resistance, or obstacle to delivery, in this case, would have been forty pounds. Now, substituting for the gradual attachment of known weights the application of the dynamometer, we can justly arrive at the conclusion: *the scale of the spring forceps is a measure not only of the power exerted in the operation, but also of the amount of mechanical hindrance to delivery.*

In cases in which labor-pains are absent, or in which they are so feeble and inefficient that they may be called = 0, the dynamometrical number, at which our efforts at extraction are successful, proximately express the entire extent of the obstacle to delivery. Observations thus obtained will be of great physiological value, and combined with the measurements of head and pelvis, may allow calculation of the compressibility of the extracted head.

Of more importance, because difficulty, as to *practice*, are those cases in which, with or without the presence of labor-pains, our efforts at extraction are unavailing. The obstacle to delivery here is greater than the dynamometric number we have obtained; and the question may now be intelligently asked, Shall we use still greater force, or at once perform embryotomy?

Careful observations, when using the spring forceps, may soon lead to the determination of dynamometric numbers, which will have a similar value for diagnostic and prognostic purposes, as certain numbers of pelvic measurement. Both these sets of numbers will be of most practical benefit, when brought in relation with every single factor of the hindrance to delivery, and with the general condition of both mother and child. Let us hope that the future thus opened to the dynamometer may not be allowed to pass unimproved. May the whole profession test its applicability, and fully realize the indications of usefulness that it gives! May the benefits resulting from its use forever prove a monument to the assiduity of its ingenious inventor!

Report of Operations performed in the Eye Department of the Brooklyn Medical and Surgical Institute. By Dr. JULIUS HOMBERGER, Ophthalmic Surgeon of the Institute.

The Eye Department of the Brooklyn Medical and Surgical Institute has been in my charge since March last. Connected with it is a free daily clinique. In the following pages I shall render an account of the operations performed in the latter, reserving a detailing of medical treatment pursued, and a full report of the department, for some future time. I should yet state that most of the operations were performed ambulatorily; many of them on seeing the patient for the first time.

1. *Strabismus alternans. Hyperopia.* Margaret R., æt. 4 years. The squinting in this case was very great. When the left eye fixedly looked at an object, the cornea of the right was turned three and one-half lines more towards the inner canthus than that of the other, and *vice versa* the cornea of the left eye, when the right eye fixated an object. The strabismus had first been noticed some months ago, and undoubtedly resulted from hyperopia. A patient whose eye is hyperopic has very strongly to exert the compressing power of his ciliary muscle, in order to make the lens as convex as possible. Without this compression, the rays coming from an object would not meet on the retina, but be thrown far behind it. Now, with every effort of the ciliary muscle, a contraction of the recti interni muscles is associated, and the hyperopic, when fixating objects very near him, has his interni muscles constantly contracted. This constant contraction soon makes him take to the habit of looking or fixating merely with one eye, and thus, after a while, a strabismus is produced.

Whether in this little girl the squint was already followed by a certain degree of amblyopy, I could not find out, as she could not yet read, but I do not think that such was the case, as the abnormity had existed only a short time, and the strabismus was of an alternating nature, so that both eyes were sufficiently often used.

I performed the following operation on the day the child was brought to me, (March 7, 1861.) I opened the conjunctiva with Cooper's scissors, half a line from the inner margin of the cornea, and separated it from the sclerotica and cellular tissues covering the muscle, by small incisions with the scissors. I then introduced a blunt hook, turned towards the place where the tendon of the rectus was to be found, and by passing the blunt point of the hook towards the sclerotica, always moving it in the direction of the tendon, I had the whole

tendon in a moment lying on it; I now cut this as near as possible to its insertion. On introducing the hook again, to see whether I had left any fibre of the tendon uncut, I found I had not.

When the patient awoke from the chloroform narcosis, the strabismus proved to be a deviation of only one and one-half lines.

March 20th, I made a similar tenotomy on the other eye; and on the 2d of April saw the little patient entirely rid of her deformity, a very slight convergence excepted. This slight degree of convergence is equal to a perfect cure, as in the two or three months succeeding the operation, the effect of the latter increases a little.

2. *Blennorrhœa sacci lachrymalis chronica.* Fanny McC., æt. 42 years. This patient could, by pressing on her lachrymal sac, which formed a tumor in the angle of her left eye, make a certain quantity of, partly mucous, partly purulent matter, issue out of the superior canaliculum lachrymale. The inferior one was closed up, as I found when I tried to enter it with a conical sound. The trouble had existed for years. The patient never noticed any fluid running down her nose or throat, when she emptied the tumor. I concluded, therefore, that the nasal duct was also closed. The only advisable operation was, therefore, desolation or destruction of the sac; for even if puncturing and dilatation of the strictured ducts could have been performed, which was very doubtful, the patient would have had to take her chances of suffering greater and more serious inconvenience than the very slight one that follows the operation I proposed. The inferior canaliculum is of far more importance in the resorption of tears than the upper; and even if the nasal orifice would not have been closed, the resorption would have been very much interfered with. I opened the lachrymal sac, enlarged the incision, downward and upward, through the internal lachrymal ligament, and cauterized the whole cavity with solid nitrate of silver.

Carelessness of the patient rendered this first operation ineffectual; she did not return until a week later, when the operation was repeated, and was followed by complete success, inasmuch as only a few drops of tears now run over her cheek a day, while she is rid of all the annoyance her former condition entailed.

3. *Strabismus convergens alternans.* Alonzo G., æt. 16 years. The deviation in this case was only two lines. I made one large tenotomy; *i.e.*, I divided the subconjunctival tissue to a large extent, in order to have a large effect. March 11th, the conjunctival wound was entirely healed, the ecchymosis absorbed, and the patient perfectly cured March 24th.

4. *Cataractæ. Nearly mature, on the left eye; beginning on the*

right. Amblyopia. Mrs. J., æt. 42 years. Since early youth the patient had had weak eyes. She could, when I saw her, only read No. XVIII. or XVII. of Jæger's Scale, with her right eye. The opacity was not, as yet, great enough to explain so feeble a vision; but the patient said she had never been able to read small print.

I operated the left eye after Schuft's method of "scooping out." (See *Summary of Foreign Medical Literature*, MONTHLY, Dec., 1860.) I made a large iridectomy, reaching to the margin of the iris; entered with the second size of Schuft's spoons, and succeeded in getting almost the whole crystalline body out; a small part of it I could not take hold of, without, as it seemed after several trials, endangering the result of the whole operation. I applied a compressive bandage; no inflammation of any account followed. I discharged the patient after eight days, but let her keep the eye bandaged for three weeks longer. She could, after that time, read Nos. XIII. and XIV. with concave glasses. The part of the lens I had not succeeded in getting out was still seen on the margin of the piece of the iris I had cut out, but gave the patient no trouble, as the pupil was perfectly large enough.

5. *Symblepharon partiale.* John U., æt. 14 years. The patient had burnt his eye with lime. After the inflammation had, by appropriate treatment, subsided, and the cornea cleared up as much as it could be expected to do, I divided the adhesions. Most of them were but slight. He was directed to frequently put oil in his eye, and to move it very often and a good deal. The largest portion of the adhesions was thus prevented from reuniting.

6. *Strabismus concomitans convergens oculi dextri.* Peter R., æt. 19 years. This patient was amblyopic in his right eye, so that he could read only No. XII. of Jæger's Scale. The deviation was three lines. Operation April 2d. A strabismus of one line still existed when I saw him some weeks afterwards, but he would not undergo a second operation so as to get this remaining slight deformity cured, saying that he felt perfectly satisfied.

7. *Strabismus concomitans convergens oc. dext.* Catharine S., æt. 22 years. Deviation four lines. Right eye could hardly see to read No. XVIII. Operation on right eye, April 5th; on left, April 15th. In May there was a very slight convergence, (half a line,) which, however, was also subsiding.

8. *Leucoma central. corn. sinist. Leucoma central. Synechia anterior, oc. dext. Cataracta capsular.* Aaron St., æt. one and one-half years. This child was totally unable to distinguish objects, as the obscurity of

the cornea was central on both sides. On the left eye, the iris was grown together with the cornea; and even a very small part of the pupil was visible only when the child looked very much inward, so that the opacity did not interfere. The whole of this condition was the result of blennorrhœa neonator. On the 10th of April I performed iridectomy on the left eye, with perfect success. The child became able to move around, avoiding chairs, etc., standing in his way. A fortnight afterwards I performed iridectomy on the right eye, and found a capsular cataract when the iris had been removed. On the 8th of May I made a small opening in the capsule, puncturing per corneam. Atropine was instilled several times daily, and when I saw the child last, some weeks ago, the cataract was perfectly resorbed. A small flap of the opaque capsule was obstructing a small part of the newly-formed pupil. I did not think it necessary to remove it, for the little patient was able to see my watch and pieces of money, when the left eye was closed.

During all the operations performed, the child was under chloroform.

9. *Strabismus concomitans convergens. Amblyopia oc. sin.* Margaret W., æt. 27 years, had a deviation of more than $3\frac{1}{2}$ lines on the left eye. She could only read large print with the eye in question, (Nos. XIV. and XV. of Jæger's Scales.) I performed a tenotomy on the left eye on the 10th of April, and one on the right eye six days later. I found after the second operation, when the patient woke up from the chloroform, that the axis of her right eye was diverging, and to diminish the too strong effect of an extensive loosening of cellular tissue and prevent too strong a retraction of the right internus muscle, I drew a ligature through the conjunctiva on the two sides of the wound, according to Von Graefe's advice, and with this pulled the whole conjunctiva, as far as it lay in the inner angle, forward, and consequently, acting also on the rectus muscle and its insertion. The following day I removed the ligature, and the eyes showed the normal degree of convergence.

10. *Wound of the Cornea. Iritis. Chorioiditis. Photophobia.* George G., æt. 18 years, a patient of Dr. Ayres, had been wounded with a pair of scissors near the centre of the cornea, which was healed, and formed a linear obscurity of the cornea 3 lines in length. When I saw the patient, neither end of this obscurity reached the margin of the cornea. There was much photophobia. Atropine had been used, and prolapsus of the iris had not taken place. The lens had not been injured, as I found after having placed him under chloroform to examine him thoroughly. The inner margin of the iris had par-

tially grown together with the wound, and the pupil was, therefore, irregular; the conjunctival and subconjunctival vessels (particularly the latter) were much injected. The fibres of the iris were hardly distinguishable, on account of an iritis of a serous character. This iritis seemed so intense, atropine had so very little effect, antiphlogistic treatment having already been administered, that I thought iridectomy strongly indicated. I proposed it to Dr. Ayres, and with his approval, I cut almost the third part of the iris out, forming a large coloboma upward and outward. I put a compressive bandage on the eye. The boy improved rapidly, and read small print a fortnight after the operation.

11. *Strabismus convergens alternans.* (2 lines.) *Nystagmus.* Ann McG., æt. 38 years, has a slight degree of amblyopia on both eyes. They are equally weak, and she reads no smaller print than No. V. of Jæger's Scales. She could give no account for this weakness, nor for the nystagmus, and believed the condition of the eyes had been existing since her early youth. On examination of the interior of the eye with the ophthalmoscope, I found nothing unusual. The patient, as almost every patient with nystagmus, was light-haired and blue-eyed. I made the tenotomy of the right internus on the 19th of April. The deviation had entirely disappeared when I saw the patient, two months later, and the nystagmus seemed to be decidedly improved. The trembling movements of the eye were very slow, and were sometimes not noticeable. Tenotomy of the internus muscle in nystagmus, performed on the stronger eye of the affected, has been recommended by Prof. Böhm, in Berlin, and executed several times by Ruete.* The latter noticed improvement in some cases.

Böhm does not consider nystagmus a nervous disorder, but atony and loss of power of the internus muscle on the stronger eye. I must have cut, according to this theory, by chance, the internus of the stronger eye, whenever I did not find any difference on examination. The muscle acts, as Böhm believes, only as an elastic ligament, and the sound externus muscle of the other eye makes only the corresponding movements by consensus.

Böhm's theory is rejected by Dr. Nacony,† but the latter's criticism, and all other literature, as far as my knowledge goes, gives me no theoretical reasons for the diminishing of nystagmus in this case.

12. *Strabismus concomitans converg. oc. sin.* (2½ lines.) *Amblyopia*

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* Ueber Nystagmus, v. Dr. Nacony, v. Graefe's Archiv., 5, I.

† Loc. cit.

(No. VIII.) *oc. sin.* Ida R., æt. 6 years, presented the above conditions of her eyes. On the 20th of April I made a large tenotomy of the left internus with perfect cosmetic effect.

13. *Strabismus concomitans convergens oc. dextr. Amblyop.* (No. XIV.) *oc. dextr.* The patient, Rosalia B., æt. 17 years, presented a strabismus of more than 5 lines, and two operations performed on both the sides, on the 13th and 18th of May, did not prove sufficient to cure the deformity. On the 26th I operated for the third time, and had a perfect success.

14. *Staphyloma partiale oc. sin. Atrophia bulbi dextr.* The patient, Edwin D., æt. 31 years, had considerable sight left on the staphylomatous eye. A part of the cornea, upward and outward, seemed to be transparent yet, and although the iris was heavily disorganized, I tried to make an iridectomy. My efforts were perfectly in vain, however; I could not get hold of the iris, which was completely changed into thick, tough membrane.

15. *Strabismus concomitans convergens oc. sin.* (4 lines.) *Amblyopia oculi sin.* Katy H., æt. 20 years; two operations, performed on both eyes on the 14th and 15th of May, effected a perfect cure.

16. *Strabismus alternans.* (2 lines.) Mary M., æt. 18 years, was affected with alternating squint. The sight of both eyes was good, and equally strong. One tenotomy of rectus internus dexter had a perfect result.

17. *Strabismus divergens oc. dextr.* (2 lines.) Joseph H., æt. 24 years. A tenotomy of the right rectus externus made the deformity perfectly disappear. The patient came to me the following day. He had tried to look at stereoscopic views to test the effect of the operation. He found that he was able to see stereoscopically, which he had been incapable to do before, on account of his strabismus. The common see-act,* *i. e.*, the seeing with both eyes together, had, therefore, been immediately established by the operation.

18. *Tumor erectilis palpebræ superioris dextræ.* Jenny B., a child of 8 months, was brought to me for a tumor in the superior lid. Though it was not larger than a good-sized pea, it prevented the raising of the lid entirely, except on a small part of the exterior angle, and even there but very little could be raised; it occupied the interior canthus; the skin over it was slightly reddened; no fluctuation.

The whole appearance made an erectile tumor more than probable. On the 24th of May I put a silk thread subcutaneously around the

* "Gemeinschaftlicher Sehakt."

tumor, and tied its base as well as possible. I had turned the lid before the operation, and satisfied myself that the tumor did not go through the tarsus of the lid, and even had a little mobility on the exterior surface of the cartilage. In consequence of the subcutaneous ligature, the neoplasm grew harder, the redness of the skin disappeared almost entirely, and the outside part of the lid could even be lifted a little more.

On the 1st of June I extirpated the tumor. I put the plate of Desmarres' forceps for the extirpation of chalazion under the superior lid; then I fastened the ring as strongly as possible in the usual way. By a crucial incision, I laid the tumor bare, and separated then the four little flaps from it. I shelled the tumor out, of course keeping as much as possible away from the tarsus.

The four flaps I united by two or three sutures.

The wound healed by first intention, and a short time afterwards, when the sutures were taken out, the patient lifted the lid almost as well as the other.

The tumors consisted of small veins and arteries, strong connections of cellular tissue, and coagulated masses of blood.

19. *Strabismus convergens concom. oc. sin.* (4½ lines.) *Amblyopia oc. sin.* Thomas St., æt. 15 years. In this case I performed the operation on both sides at the same time, (May 29th,) in order to find out whether in higher degrees of deviation the operation *à deux temps* might not be dispensed with. In private practice, it is undoubtedly very disagreeable to operate more than once, and the patients object to it sometimes. I therefore wanted to satisfy myself whether two tenotomies performed at once could be substituted sometimes for the operation *à deux temps*. I loosened the cellular tissue more carefully than I am accustomed to do, and took my smallest hook for catching the muscle. The result was perfect. The patient's eyes were parallel after the operation, and after the tendons that had been cut off had grown together again with the sclerotic, the eyes presented that degree of convergence which ought to exist always a few days after the operation, and disappears in some months entirely.*

20. *Dacryocystitis acuta.* Mrs. Caroline F., æt. 40 years, whom I had had under my care some time previous for a chronic blennorrhœa of the lachrymal sac, which I had treated with Bowman's sounds for a short time—till she lost patience and did not allow me to introduce

* The reader remembers the three periods of tenotomy of the eye muscles, fixed by Graefe.

the sounds on account of "nervousness"—came with a large tumor on the inner angle of the right eye. The skin in this region was intensely red, and the patient suffered much from pain. I proposed at once to open the sac, and made a free incision. A mass of pus was discharged. I ordered cold injections and water compresses for the two following days, and then a light collyrium of zinc, for syringing. A short time afterwards almost the whole trouble had disappeared. The diseased membranes discharged a little mucus, but not so much as previously; the wound in the skin was healed. I could not induce the patient to get the subsiding blennorrhœa cured with the sound.

(To be continued.)

Report on the Clinic for Diseases of Children, held in the New York Medical College, Session 1860–61. By A. JACOBI, M.D., Professor of Infantile Pathology and Therapeutics.

(Continued from September No., p. 160.)

II. *Belladonna.* The root and alcoholic extract of this powerful narcotic have been administered by me in many hundreds of cases of infantile diseases. Those in which they have proved eminently successful are whooping-cough, and incontinence of both urine and fæces. A few remarks will suffice to lay my experience before the profession.

The most urgent objections that have been made to the use of belladonna in the diseases of early age were illustrations of its powerful effect. Therefore, also, the administration of the herb was frequently recommended in preference to both the root and the alcoholic extract. Such a recommendation, however, always originated in the so-called expectant method, in the principle of meddling as little as possible with the either wholesome or destructive proceedings of nature, in the uncertainty of doing good, and the fear of doing harm. But in regard to such diseases as really and positively require the intervention of art, I know of no principle that proves more injurious than this; and, instead of preferring the herb for its milder, and also more uncertain effect, I have discarded it altogether in my practice. The therapeutical effect of the root and extract I have found to be the same; the remarks I have to make are therefore applicable to either of them.

Belladonna is the most powerful remedy in whooping-cough. I scarcely remember a single case in which its administration, for years past, proved unsuccessful in shortening the duration of the process.

The result obtained by me has generally been this: that a well-developed case of whooping-cough, after the diagnosis was made certain beyond a doubt, would last for only three or five weeks longer, instead of running through its full course of months and quarters of a year. The effect is generally not a sudden one. Many cases in which belladonna is given from the first commencement will become worse for a short while, then remain at their height for some days or a week, and gradually improve in both the character and frequency of the attacks. In others the effect is perceptible from the first days after their first administration; the cases soon assuming a more favorable aspect. Such has been my uniform experience during the last five years, in each of which the children of this city have been suffering from a more or less severe epidemic.

My readers, many of whom doubtless have been in the habit of prescribing belladonna in whooping-cough with more or less marked success, need hardly be assured that I claim no priority. Belladonna has been recommended in this disease for many decennia, and has just as long been objected to, as either useless or dangerous. I have touched the subject because of my conviction that both the former objection and the latter fear are groundless.

Belladonna is well known readily to produce symptoms of poisoning. An amount of two and a half or three grains taken by an adult in the course of a day, of either root or extract, has the effect of dilating the pupils, causing a feeling of dryness in the throat, scintillation and giddiness, and even erythema of the skin. This latter effect is, however, not frequently seen in adults, while the effects on the pupil and brain are very common. It was therefore believed that, as nervous disorders are as common as they are dangerous in infantile age, these effects ought to counter-indicate its use; it was stated that it would cause congestion, sopor, acute hydrocephalus, and idiocy; and the practical consequence simply was, that the dose of the remedy, when given at all in a case where it appeared to be indicated, was entirely too small. Thus, doses of a sixtieth, a forty-eighth, a thirtieth of a grain of extract of belladonna, repeated three or four times a day, were deemed sufficient and proper. These doses could not but prove unsatisfactory, and thus it happened that the remedy was misappreciated and given up. The doses, however, administered by me proved successful, because they were really sufficient.

Infants of six or eight months of age affected with whooping-cough require a sixth of a grain of either the root or the alcoholic extract three times a day; children of three or four years tolerate three doses,

each of half a grain. These doses appear to be very large in proportion to those tolerated by adults, but it is a fact which can easily be verified, that the effect of belladonna on the pupil and brain will hardly ever be perceptible in children from these or smaller doses. The sequence of belladonna symptoms in children differs, moreover, altogether from that in adults; the erythematous and flushed appearance of the face and neck, sometimes even of the whole surface, is the first symptom in infantile age; whereas it is seldom observed in adults, or in cases of thorough poisoning only. Some of the old authors have advised the administration of belladonna to such an extent as to produce the first symptoms of poisoning; others, however, have insisted on this practice being dangerous and wholly objectionable. I, for my part, soon found that those children suffering from whooping-cough who exhibited general erythema from an apparent overdose recovered soon, while others, in whom no such symptom was observed, remained sick for a long time; and continued experience has proved that the occurrence of this symptom is absolutely necessary for the full remedial effect. To obtain a cure in whooping-cough, the remedy must be given in a dose sufficient to produce erythema, or at least a flushed condition of the face, and, as it were, feverish appearance after every dose of belladonna. Thus the dose is to be gradually increased until this result is obtained. It is a remarkable fact, that very young infants may take unproportionately large doses; at all events, I do not remember a single case in which less than half a grain was taken in the course of a day. The prescriptions I have been in the habit of ordering are very simple ones. I either give the medicament as a powder, or have the extract dissolved in water and sweetened according to circumstances.

R.—Rad. (or extr.) belladon., . . gr. ii.–vj.
Sacch. alb., (or s. lactis.,) . . ʒss.
M. f. pulv., div. in p. æq., No. xii.
D. S.: Three powders a day.

R.—Extr. bellad., alcoh., ... gr. vj.
Aq., ... ʒ ss.
M. D. S.: Twenty drops three times a day, (for a child of three years.)

The administration of belladonna alone is indicated in such cases of whooping-cough as are not complicated with catarrhal or inflammatory affections of the respiratory organs. The latter take the lead in complicated cases as well in treatment as in the nature and gravity of the symptoms. This is so certain, that whenever a pneumonia coin-

cides with or follows whooping-cough, the peculiar sound of the cough of the latter will disappear, nor return before the inflammatory affection is removed. As this is moreover the most dangerous of the two, it requires attention before the other. As to bronchial and laryngeal catarrh, the former especially is a very common symptom in whooping-cough. Where it is but slight it may be considered as unimportant; where, however, it gives rise to fever or dyspnœa, it constitutes a further indication to interfere. A dose of rad. ipecacuanh., or of oxysulph. antim., may then be given combined with the belladonna.

℞.—Rad. (or extr.) belladon., . . . gr. vj.
Oxysulphur. antimon., ... gr. xij.
Sacch. alb., ... ʒj.
M. f. pulv., div. in p. æq., No. xii.

D. S.: Three powders daily.

There are some old formulæ combining belladonna and opium. As we know at the present day, however, that in many regards belladonna and opium counteract each other, especially in their bearing on the action of the circulatory system, so that the two have been considered for some time past as direct antidotes of each other, the idea of combining these two narcotics must be given up as irrational.

Incontinence of urine is another of the troublesome affections which are in almost all cases easily removed by the administration of belladonna. From the almost regular effect it has, we must conclude that the majority of cases depend on increased irritability of the bladder, which is relieved by the administration of the narcotic. The affection is as frequent as it is troublesome. Dr. Addinell Hewson reports in the *American Journal of Medical Sciences*, October, 1858, "some facts in relation to the nocturnal incontinence of urine in children." He observed seventy-eight cases among the two hundred and ninety-two boys in the House of Refuge, in Philadelphia; the average ratio of the diseased being 1 : 3.75. The ratio was in the white boys, 1:7; in the black, 1:2.7. The average age was 12½ years; the youngest affected with the disease was 7; the oldest, 18 years old; the greatest number affected at any one age was 9; this was at the age of 14 years. Of 63 cases, there was uric acid deposited in 31 specimens, urate of ammonia in 8, urate of soda in 1, ammon. magnes. phosph. in 1, no deposit in 22. The prepuce and penis were discolored, and the former much elongated, as either from frequent pulling to relieve the itching of cystic irritation, or from masturbation; in 33 there was every reason to suspect this; in 12 there was no suspicion. Amount of drinking and diet had a great influence; a sudden fall of the ther-

mometer or barometer always increased the number of patients. Bromide of potassium in two and a half and three grain doses, three times daily, cured 9 after a week's administration, and benefited 4 after another week. The remaining 50 were not benefited at all. To the 54 chloride of iron was given for six weeks without any effect. Tincture of cantharides was then given for two weeks, brought on dysuria in the majority of the patients, but cured none. Then, at last, belladonna was resorted to. During two nights, at the end of the first week, there was not a single case.

I have given a pretty full account of this report, because of its accuracy, and not because of its being the only one. More than twenty years ago, belladonna, and other narcotics also, have been recommended for the same purpose, and the medical journals of the last few years contain a large number of cases of incontinence of urine, cured in the same manner. For four years past, during which time I have given belladonna in every instance, I have not seen a single case in which the medicament proved unsuccessful. A complete cure was generally obtained in half a week or a week, by doses of the same strength, or a little less than those given in whooping-cough. Perhaps, however, the administration can be greatly simplified. One of the former students of the New York Medical College, Dr. Guild, of Rupert, Vermont, cured a girl of seventeen years, who wetted her bed every night, and had been attended for her disease since her early years, in a few days, by a single daily dose of belladonna, administered at bedtime.

The admirable effect belladonna has in incontinence of urine induced me to give it in cases of incontinence of fæces, an affection not so frequent as the former, but certainly even more troublesome. The first case was that of a boy of three years, who, although accustomed to cleanliness and self-control, could not be induced to keep his fæces. Three daily doses of half a grain of rad. belladon. removed the affection in from five to six days. Several other cases were relieved in the same manner, and the experience of other writers shows the same results. Dr. Richard administered belladonna for the same purpose, and moreover, introduced into the rectum a suppository coated with extract of belladonna. In one case, a satisfactory result was obtained in two days. And Dr. Bercioux, after having tried, and generally in vain, tonics, iron, cold, cantharides, and secale cornutum, had complete success with extr. bellad., gr. $\frac{1}{7}$ (one-seventh) two, three, or four times a day, even in inveterate cases.

On the indications for the use of belladonna in other affections I

have but little to say. As others, I have frequently used belladonna in photophobia attending the conjunctivitis of scrofulous children, and its alkaloid in more or less severe cases of keratitis. My general practice has been, in the former, to rub into the eyebrows, forehead and temples, many times a day, part of the following salve:

℞.—Ungt. hydrarg. ciner., . . . ℥ij–iij.
Ext. belladon., ... ℥j. M. ft. ungt.

In cases of exudative keratitis, a solution of atropia in distilled water, applied to the eye by means of a soft brush, has proved exceedingly satisfactory:

℞.—Atropiæ, ... gr. j.
Solve in aq. destillat., . . . ℥ij–℥ss. M. D.

Finally, of the prophylactic effect of belladonna in scarlatina, on which so much has been written and said, I have but little personal experience. This little, and a careful study of the results and experience of others, induces me to give it no further trial.

III. *Hyoscyamus.*—After the expositions given on narcotics in general, and on opium and belladonna in particular, a few words will suffice to characterize the value of hyoscyamus in the diseases of children. It has the general effect of narcotics, with less influence on the cerebral functions than any of the above. While it undoubtedly acts on the nervous system, its centres appear less affected by it than its peripheric ramifications. From this fact, it would result that larger doses are not only tolerated, but required.

In regard to its action on the nerves, we find that it influences more the sensory nerves than the trophic ones. It does not suppress secretion like opium, nor has it so much of the contracting power over the lumen of the blood-vessels as belladonna. While it is easily tolerated by the stomach and intestines, it little interferes, if at all, with their functions. Thus, it may be given in severe colic pains, added to such remedies as are administered for causal indications. It acts well, further, when added to medicines intended to relieve catarrhal affections of the respiratory organs. It relieves pain without producing sopor, and irritation of the mucous membrane without interfering with its secretion. It is, therefore, a valuable additional remedy in laryngeal and bronchial catarrh, and intestinal catarrh with great uneasiness or pain; in catarrh of the bladder, with much straining and pressing. It is, therefore, given merely for its symptomatical action; but we are frequently under the necessity of attending to the symptoms of an affection for their own sake, as well as we try to remove the cause of the

disease. Finally, hyoscyamus acts well by counteracting the irritating effect of other remedies, which may be found indispensable, but the irritating effect of which is nevertheless much feared. Thus, I have, since I did not deem it proper to add enough opium, especially in very young children, to counteract the local irritation of veratria, always added, in infantile practice, extract of hyoscyamus to the tincture of veratrum.

℞.—Tinct. verat. virid., ... gtt. xx.
Extr. hyosc., ... gr. vj.
Aq., ... ℥iij.

M. D. S.: Ten drops every two (or three) hours, to children of a year, according to the indications of the tinct. veratri.

I add extract of hyoscyamus very frequently to expectorants, the action of which is not interfered with, while the cough of bronchial affections is greatly relieved; therefore, I often combine it with powders, or mixtures containing ipecac., oxysulphur. antimon., squill., liq. ammon. succin., or muriat. ammon.

℞.—Oxysulphur. antimon., . . gr. xij.
Extr. hyoscyam., ... gr. vj.
Sacch. lact., ... ℥ss
M. ft. pulv. Div. in p. æq., No. xvj.

D. S.: A powder every two (or three) hours, in bronchial catarrh, to children of one or two years.

℞.—Muriat. ammon. pur.,
Ext. glycyrrh. pur., āā., . . ℥ij.
Ext. hyoscyam., ... gr. xij.
Aq., ... ℥iij.

M. D. S.: A tea-spoonful every two hours, in bronchial catarrh, to children of two or three years.

℞.—Bicarbon. sodæ, ... ℥ij.
Extr. hyoscyam., ... gr. viij.
Aq., ... ℥ij.
Syr. gummos., ... ℥j.

M. D. S.: A tea-spoonful every two hours, in catarrh of the bladder, to children of one or two years.

It is not necessary, however, to multiply prescriptions, when the indications for both its independent and additional administration are clearly given. Independent of any addition, I have often ordered it in the irritation and colic following gastro-intestinal catarrh, (in similar cases, therefore, as those requiring the use of codeia,) and in laryngeal catarrh, in place of opium. While in the former a frequent and

small dose will prove sufficient, it is better in the latter to give a larger dose, of a grain, or two or four grains, at once, in the evening.

The dose of extract of hyoscyamus, as is stated above, and as results also from the prescriptions given, is not so small as that of other narcotics. Newly-born infants have taken, with good effect, from a grain to a grain and a half a day, and children of two or four years tolerate well doses of from two and a half to four or five grains.

Treatment of Wounds produced by Venomous Serpents. By Dr. DIEDER. (Translated from the *Journal de Chimie Médicale*, by L. H. S.)

Being convinced of the correctness of the views of Robin and Verdeil (*Chimie Anatomique*) as to the analogy existing between ferments and the causes of certain virulent diseases, and knowing that fermentations are absolutely checked by the presence of acids, albumen and alcohol, I have endeavored to verify the value of this opinion by practice. An occasion soon presented itself, during a sojourn in Brazil, of experimenting, and, for a period of sixteen months, I have seen experiment give entire sanction to my theoretical notions.

It frequently happens that men are victims to the bites of venomous reptiles, which abound in the torrid zone. The ordinary symptoms are, acute pain in the bitten part, which swells, becoming shining, red, warm, violet, then livid, cold, and somewhat insensible; the pain and the inflammation are extended along the great nervous trunks and lymphatic vessels; soon are manifested lypothymia, nausea, gastralgia, dyspnœa, cardialgia, bilious vomitings, cold and colliquative sweats, tympanitis, acute gripings, acute lumbar pains, relaxation of the sphincter ani, a species of paralysis of the neck of the bladder, and, consequently, involuntary discharges of fæces and urine. Then the pulse is small, hard, intermittent; the skin (even that of the negro) becomes pale and yellow; blood, black, liquid and sanious, runs from the wound, which assumes a gangrenous appearance. If a series of such grave symptoms, analogous in more than one respect to those of diffused phlegmon and purulent infection, is not soon relieved by the aid of art, they increase still more, and those portions of the body affected by œdema are covered with phlyctenæ, which indicate the coming of sphacelus; hæmorrhages from the eyes, ears and anus, and death takes place in the midst of ataxic or adynamic symptoms.

In many cases, I have been able, by the treatment which I shall indicate, to check all the symptoms, and to restore health in a very

short time, to the blacks, who, wounded by serpents either in hand or foot, presented cases of great inflammation, extending even to the ganglia of the articulations nearest the trunk.

The treatment is that by *alcoholization*, and consists in administering a moderately large quantity of brandy, rum, or other alcoholic liquor, varying with the age and strength of the individual; generally, this first dose should be from 50 to 100 grammes. Immediately after the accident, an aromatic infusion is to be prepared, which should be given to the patient to drink, as warm as possible, immediately after drinking the alcoholic liquor.

The patient should be kept in this state of alcoholization until the local and general symptoms have improved, and the partial disappearance of the swelling and pain can be readily perceived. This period may last twelve or twenty-four hours, or longer, according as the treatment has been commenced sooner or later after the bite. During this period, there should be administered hourly about 60 grammes of the warm aromatic infusion, with from 10 to 15 grammes of the alcoholic liquor. As soon as the symptoms appear to retrograde, it is sufficient to keep up the cutaneous transpiration by means of warm tisans, and to administer a saline cathartic. In cases where the amendment is followed by a relapse, alcoholization must be again had resort to.

This method I have never seen fail when it was employed within two hours, or a little longer, after the reception of the wound.

These observations have been made in the interior of Brazil, in the midst of the coffee plantations on the banks of the Parahyba. The treatment has been employed not only on man, but also on animals; a watch-dog of large size, which had been bitten in the forehead by a trigonocephalus, the two fangs being left in the wound, was subjected, after the withdrawal of the fangs, to an alcoholization for twelve hours, with success; in this case, however, the swelling of the head had reached enormous proportions, so that it was impossible to recognize the eyes. The same fortunate result was obtained in the case of a mule bitten in the nostrils.

The local treatment consists in distending the wound so as to be sure that the reptile's fang is not present, and to cause blood to flow so as to wash out the poison that may have been deposited; a cupping-glass may be used for this purpose. Finally, after having washed it well, compresses of alcoholized water are employed, which should envelop the whole limb, if the poison has made any progress. It is, of course, understood that the subject is kept warmly covered in bed.

If one compares the series of symptoms produced by the bites of venomous serpents with those of anatomical wounds, the analogy is more manifest. The same treatment has succeeded in the latter cases. Two anatomical wounds of the hand, which had already produced swelling of the glands of the axilla, with tumefaction of the elbow-joint, were entirely managed by this method; the same evening there was an amelioration of symptoms, and a cure resulted. The happy influence of alcoholization in these cases is explained by the supposition that the alcoholized system being protected from the action of the poison-ferment, can then by its own unaided efforts throw it off by the natural emunctories, without being exposed to its deadly effects. *Alcohol is to ferments what chloroform is to pain.* It is a subject of public notoriety in Brazil, that a man in a complete state of intoxication may be bitten by a venomous serpent with impunity.

Such are the facts to which I have desired to call attention. It is possible that this succinct *exposé*, by opening up a new mode of experimentation, may lead to new experiments for the cure of putrid infections, carbuncle, and probably hydrophobia.

[In relation to the subject of the foregoing valuable paper, we refer our readers, also, to our *Summary* of last month, p. 225.—L. E.]

MONTHLY SUMMARY OF DOMESTIC MEDICAL LITERATURE.

By Dr. T. Gaillard Thomas.

1. *Reposition of an Inverted Uterus of Fifteen Years' Standing.* By Henry Nichell, M.D. (Buffalo Medical and Surgical Journal and Reporter, Sept., 1861.)
2. *Case of Excision of Inverted Uterus; Death Five Years afterwards, from Phthisis; Autopsy.* By William Henry Thayer, M.D. (Berkshire Medical Journal, September, 1861.)
3. "*Desormeaux's Endoscope, a Lantern of the Bladder.*" By Dr. S. Pollak. (St. Louis Medical and Surgical Journal; Berkshire Medical Journal, September, 1861.) ["The Gastroscope."]
4. *Styptics upon the Battle-Field.* By John M. Maisch, Pharmaceutist. (Philadelphia Medical and Surgical Reporter, Sept. 7, 1861.)
5. *Case of Empyema; Thoracentesis; Death from Hæmorrhage.* By Francis Minot, M.D. (Boston Medical and Surgical Journal, Sept. 12, 1861.)
6. *Remarkable Case of Recovery from Drowning by the aid of Faradaism and Electro-Puncture.* By Alfred C. Garratt, M.D. (Ibid., September 5, 1861.)

7. *Abortion in Third Month, with Adherent Placenta.* By Wm. W. Vasse, M.D. (St. Louis Medical and Surgical Journal, Sept., 1861.)
8. *Most Efficacious Treatment of Stomatitis Materna.* By J. N. Gibson, M.D. (Ibid., Sept., 1861.)
9. *Case of Rupture of the Abdominal Parietes.* By Edward Batwell, M.D. (Medical and Surgical Reporter, Sept. 14, 1861.)
10. *Obstetric Statistics for Twenty Months.* By B. Woodward, M.D. (Ibid., Sept. 14, 1861.)

1. Dr. Henry Nichell reports reposition of an inverted uterus of 15 years' standing, by application of aq. plumbi to the tumor for three days, and then the employment of taxis.

2. Dr. Thayer reports a case of inversion of the uterus ensuing after delivery. Hæmorrhage occurred and continued for three years, when her attending physician [name not mentioned] removed the inverted organ. For a year she seemed benefited, but after that period head symptoms appeared at each monthly epoch, and five years after the operation she died. Autopsy showed very little of uterus left; all the fundus, part of cervix, and part of Fallopian tubes having been removed.

3. Dr. Pollak, writing from Paris, describes an instrument used by Desormeaux, of *Hôpital Cochin*, for illuminating the bladder. It is a catheter, with illuminating apparatus at the end, which has a window. "He *pretends* that he never fails to *see* a calculus, without feeling it!!" [Apropos to ridiculous new "*scopes*," we do not fail to transplant here also a London invention by a celebrated "stomach man," to wit, an instrument for the examination of the interior of the great digestive organ in obstinate and obscure diseases, to be ycleped the "gastroscope." "It mainly consists of a tube, which passes down into the stomach through the œsophagus," says a London correspondent of the *British-American Medical Journal*, "and is so delicately arranged, that by a series of reflecting surfaces the state of particular parts of the mucous membrane is shown in a mirror at the back of the mouth."]

4. Mr. Maisch lays great stress upon the employment of Monsell's salt (persulphate of iron) as a styptic, before the wounded man is removed from the battle-field. Among other styptics which might be employed, he mentions the Penghas-whar-jambi, thus:

"*Penghas-whar-jambi.*—The interesting substance with that barbarous name, derived from a Cibotiune, a fern of Java, consists of thread-like, shriveled cells, through the walls of which the blood is absorbed, causing simultaneously an expansion of the whole cell. It is possible

that simply by this diffusion, the fibrin of the blood may pass into the insoluble state, and that by this action in connection with the influence of oxygen over an extended surface, the exuding blood is sufficiently coagulated to arrest bleeding, though much of the effect is undoubtedly due to the enlargement of the cells, and the consequent pressure upon the ruptured vessel, inasmuch as the simple application of the loose substance has comparatively little effect, and as it has the desired result in the shortest time, if it is rolled together and applied with a gentle pressure. The explanation, by many physicians, of the *modus operandi* of these paleæcibotii is that of a simple filtration, whereby the blood is deprived of its fluid portion, leaving the corpuscles behind in a mass. It is most likely that all these causes combined lead to the great activity of this last-mentioned hemostatic, and that filtration exercises its influence likewise in the other cases. It is certain, however, that all the substances named, together with some others popularly employed, like the web of the common spider, act mechanically, and are entirely or nearly destitute of soluble constituents, or of bodies which exert a chemical influence on blood."

5. Dr. Minot reports a case of empyema, operated on by thoracentesis, in which fatal hæmorrhage occurred 26 days after.

"At the autopsy two pints of coagulated blood were found in the left pleural cavity, whose walls were everywhere covered with a thick, rough, firm, false membrane. The costal pleura and parietes of the thorax on the same side were in several places deeply eroded, as if the pus had pointed there, before the puncture was made. The ribs were exposed and denuded at several points. The vessel from which the blood escaped could not be found. The left lung was much compressed against the spine, but still contained air. At its apex was a small cavity, and lower down another, still smaller, in the neighborhood of which was a mass of yellowish-white tubercle. In various parts of the lung were gray granulations, isolated, or in groups. Many of the same granulations were found in the upper lobe of the right lung, and, at one point, softening. The right pleura was healthy. The heart was quite small, and occupied the median line.

"The hæmorrhage in this case probably came from one of the intercostal arteries, which must have been opened in the process of necrosis of one of the ribs. From the small quantity that escaped from the chest, it seems likely that the ulcerated vessel was not situated near the puncture. The condition of the lungs and ribs showed that the operation could not have saved the patient, even had not hæmorrhage occurred; but the great relief it afforded would fully justify its being

performed in another similar case, as a means of both relieving suffering and of prolonging life."

6. One stormy morning, in the month of March, a powerful seaman missed his footing and fell into Boston harbor. The body was "cold, rigid, and apparently lifeless." Dr. Garratt was informed by the bystanders that twenty or thirty minutes had passed before the body rose to the surface, after its immersion. The body being removed to a neighboring house, a stomach-pump was used, and an incredible amount of water removed from the stomach. Then a strong electrical current was passed through the chest, the positive electrode being applied to the nucha, and the negative passed over the chest anteriorly, the current being occasionally changed in course. This was kept up for an hour.

"But after this, having thus worked definitely and perseveringly with all our operations for more than an hour, the machine also running all the while at the highest possible speed and strength, and having thus thoroughly embraced the nerve-trunks, ganglia, nerve ramifications and muscle fibres of the thorax in the circuit of this powerful electric current, and finding that no signs of life appeared, we redoubled the energy of all our appliances. While other things were being well done, I now directed the current through the chest, placing the positive pole to the nipple of the right breast, and the negative to the nipple of the left, the body at this moment lying on the right side, inclining well over towards the face. Instantly there was perceived a quick, short inspiration, much like a sigh; but unfortunately, this could not be reproduced, though sought for with most strenuous efforts by all hands, for some time longer. I now loosened the binding screw of one of the conductors from the machine, and thus holding its metallic tip, the positive electrode being placed at the *nuche*, while the negative was adjusted with a small sponge-tipped ivory electrode, the sponge being moistened and placed in the left nasal fossa, I made and broke contact in this manner with my hand, every ten or fifteen seconds, retaining the action of the current longer than the cessation. This was a renewed success. Its rallying power was wonderful. Repeated sighing-like inspirations were thus pretty regularly but seldom produced, as was evident to me, and at the same time the skin became softer and warmer. It is noteworthy, that these sighs or inspirations were so slight, and amid such brisk work, and were also so unexpected, that they were discredited by some of the more doubting eye-witnesses. These lively processes were pursued, however, for some half hour longer; during which time the electrodes were placed respectively

on the breasts, and sometimes at the nuche and nose, and then opposite the diaphragm, from the lower cervical vertebræ to the pit of the stomach, &c., but the phenomenon of life appeared to flag a little instead of increasing.

"At this juncture I resolved to resort to electro-puncture; not primary galvanic, but suitable, or at least admissible, for such a case. Long gold electro-puncture needles, well insulated except at their points, four in number, and four inches in length each, were carefully inserted in quick succession, some two or three inches apart, along the front sides of the chest, two in the lower part of each pectoral, plunging them inward and downward between the fifth and sixth ribs, their whole length, thus transfixing the pectoral, intercostal and diaphragm muscles, embracing the external nerves, also the solar plexus and the phrenic nerve branches. The introduction of the needles made no visible impression, but the instant the electrodes were now removed from the skin and brought only into contact with the ball heads of the needles, (or the coupling chain of each two,) so that the electric current actually traversed the diaphragm, from the points of one pair of needles on one side to those in the other, there was produced at each contact, *i. e.*, after a delay of some five seconds or so, most manifest respirations, to the infinite delight of all present, for this was the *argumentum ad hominem*."

In half an hour the heart was beating, and the patient subsequently recovered.

7. Dr. Vasse was called in great haste to Mrs. M., June 21st, who was in third month of pregnancy. She stated that she had had symptoms as if of approaching menstruation, and upon feeling something pass from the uterus into the vagina, had passed her finger into that canal and drawn forth a fœtus without membranes. She removed it, breaking the cord, and very soon slight sanguinolent discharge, which existed, entirely ceased.

On the 30th was taken with severe bearing-down pains, (having in the interval between this time and the 21st been well,) which were quieted by morphine. On the 3d July violent hæmorrhage occurred, which nearly destroyed life, and this continued until the 6th, when the placenta was manually removed. The only peculiarity about the case is the fact of no hæmorrhage existing at the time of expulsion of the fœtus, and its occurring in so violent a form after the patient's remaining well for nine days, at which time the attachment of the placenta was separated, and the mouth of the uterine vessels left open.

8. Dr. Gibson advises for stomatitis materna as "nearly specific

as quinine for intermittent fever," chlorate of potash, half-drachm doses daily, and application of solution of tannate of zinc to the part affected. [The use of chlorate of potash in this and all kinds of stomatitis is indeed "nearly a specific," and has long been so regarded and employed in this city.]

9. Dr. Batwell reports a very curious case. The patient, Mrs. D., æt. 67 years, of intemperate habits, had suffered for three weeks from bronchitis, which was yielding to treatment, when the Dr., being suddenly called to her, found that in a violent attack of coughing "a complete rupture had occurred, not alone through the muscular fibre of the recti muscles and linea alba, *but through the integument itself*, permitting a large quantity of omentum and small intestines to escape from their natural cavity, which were, with considerable difficulty, returned, owing to the strong muscular contraction and to the expression of pain from the patient. However, being returned, they were retained by simple sutures and a firmly applied bandage, and the patient ordered 40 drops of tr. opii in some brandy and water, and to have it repeated every fourth hour if found necessary, to allay her cough.

"The rupture had occurred about an inch and a half below the umbilicus, was about four inches long externally, and about two inches in extent through the peritoneum. The recti muscles were severed through their entire breadth, and there was no appearance of ulceration or previous abrasion of surface, to account for the accident. On visiting her some hours afterwards, I found her very comfortable, having had some refreshing sleep, and having partaken of some light diet. The medicine and brandy were ordered to be continued, and on my visit next morning she expressed herself as having rested well, and feeling more easy and comfortable than she had for some time. On the fourth day after the accident the bandage was removed, and the wound had progressed towards healing in a satisfactory manner; one point of the suture had cut through, but union had taken place between the surfaces of the wound. For the first time she complained of tenderness over the peritoneal region, and I combined calomel with opium, which was administered very freely during the day and night; on my visit on the morning of the 8th, (being five days since the rupture had taken place,) I found that considerable nausea had supervened during the night, and just previous to my arrival, she had, in a violent fit of coughing and vomiting, again ruptured the newly formed adhesions, permitting the escape of the intestines as on the former occasion. This had occurred, doubtless, from the patient hav-

ing loosened the bandage, thus taking away all support from the recently formed adhesion.

"With the kind assistance of Dr. D. Henderson, I was enabled to return the protrusion, which was now firmly agglutinated together by inflammatory action of the peritoneal surfaces. It was retained *in situ* by aquilled suture and bandage. Considerable serum escaped from the cavity during our manipulations, a symptom not observed on the former occasion. The same course of treatment was pursued as on the first accident, but not with very satisfactory results, as on next day she complained of considerable pain over the entire surface of the abdomen, with great tenderness and constant nausea. Calomel was again resorted to, and appeared to exercise a beneficial effect, but it soon also lost its power to allay the distressing symptoms, though it certainly restrained the tympanitis, which now had become very urgent. During this period of two weeks all the secretions were perfectly natural, and were carried on as if nothing had happened. The wound was examined daily, and evinced little tendency to reunite. The patient now began to lose her strength, and was kept continually under the effect of stimulants. The several organs of the body gradually became affected. The kidneys, liver, and finally the brain yielded, and on the 28th of June she died without a struggle, having lived twenty-five days from the receipt of the injury."

10. A successful case of prolapsus funis, treated by the postural method, is reported by Dr. B. Woodward, of Galesburg, Ill., [which makes the thirty-eighth successful case out of forty-eight cases in which it has been tried, as far as we know.]

MONTHLY SUMMARY OF FOREIGN MEDICAL LITERATURE.

By Dr. L. Elsberg.

95. *On Rare and Anomalous Affections of the Nervous System.* By Jonathan Hutchinson. (London Medical Times and Gazette, August 3, 1861.)

96. *The Treatment of Erysipelas.* By William Pirrie, Jr., M.D. (Edinburgh Medical Journal, July, 1861.)

97. *The Treatment of Scabies.* By T. McCall Anderson, M.D. (Medical Times and Gazette, August 10, 1861.)

98. *On the Use of Cold in Surgery.* By M. Esmarch, M.D. (Langenbeck's Archiv; Schmidt's Jahrbücher, No. 7, 1861.)

99. *The Modes of Termination of Extra-Uterine Pregnancy.* By Dr. Mattei. (Gazette des Hôpitaux; Times and Gazette, Aug. 17, 1861.)

100. *On Rigidity of the Os Uteri and its Treatment.* By M. PAUL DUBOIS. (Gazette des Hôpitaux, No. 20, 1861.)

101. *Leucorrhœa and Ulceration of the Cervix Uteri in Pregnancy.* By M. CHARRIER. (Bulletin de Thérapeutique, Vol. LX., 1861, p. 59.)

95. "Diseases of the nervous system often manifest themselves in what we might almost call so curious a manner, that, in the present state of physiology, the record of them seems more like collecting curiosities than illustrating practice. We must, however, remember that affections—for instance, cases of circus-movement—which, being so rare, were necessarily little studied, and yet so extraordinary that they forcibly claimed attention, have, by the advance of physiology, been made out to depend on definite lesions of certain parts of the nervous system, so that, by experiment, we can produce in animals the phenomena of disease. The writer lately saw a patient, a man, aged 33, under the care of Dr. Kitching, of York, who, when placed in the middle of a room, would at once begin to turn from right to left, the heel of the left foot being the pivot, and remaining in the same position. He is insane. When led back to his couch, he knelt before it, burying his head in his hands. His mental defect rendered it very difficult to ascertain the facts of the case very clearly. He says he "is told to do it," which probably is the only language or idea into which his insane mind can translate the necessity under which he feels that he labors. This case will, we believe, be fully reported in this journal.

"We recorded, a few months ago, a case under the care of Dr. Brown Séquard, in which a man being apparently otherwise healthy, applied in order to obtain relief from a constant tendency of his lower jaw to fall, except when he was either talking or eating. Dr. Brown-Séquard mentioned the case of a patient who would now and then involuntarily clasp his hands over his chest.

"The following is a case the interpretation of which would, at one time, have presented great difficulties. A man was admitted under the care of Dr. Brown-Séquard, who had an accident twenty years before, by which he injured the cervical spine. He had had ever since considerable loss of motor power and hyperæsthesia on the left, and anæsthesia on the right side of the body, the face excepted. A short time ago a patient whose case is somewhat similar, but in whom the paralysis has followed injury by a knife in the cervical region, attended Dr. Brown-Séquard's practice. In this case the various symptoms due to lesions of one lateral half of the cord were most prominently exhibited. On Monday last we saw another case of extreme rarity, *i. e.*, recovery after apoplexy into the spinal cord. The man says that,

many years ago, he fell down suddenly insensible, and when he recovered consciousness, about half an hour afterwards, he found that the whole of his body was completely paralyzed, both as to sensation and motion, except above a line drawn round the neck from about the level of the second cervical vertebra. He has gradually recovered, but there still remains sufficient defect of sensation and motor power to confirm his statement of his condition after the fit. We hope to be able to place the details of these interesting cases before our readers.

"A patient applied at the Royal London Ophthalmic Hospital lately for paralysis of the third nerve and frontal branch of the ophthalmic division of the fifth nerve. He said that he had frequently a tendency to laugh without cause; he could with difficulty restrain himself, and was in the habit of putting his hand over his mouth to do so. Dr. Paget, of Cambridge, has recorded a case in which, among many other anomalous symptoms, frequent bursts of unmeaning laughter was a complication of epilepsy. At a late visit to the Hospital for the Epileptic and Paralyzed, we saw a patient of Dr. Ramskill's, of whose case the following are brief particulars: a young man, aged 18, of good general health, had a spasmodic drawing in of the fingers and thumb of his left hand, especially when his attention was directed to it, his thumb being firmly contracted on his palm. There was no choreic movement of the rest of the arm. There was no paralysis, and the muscles of the forearm, both extensors and flexors, were very strongly developed, much more so than on the healthy side. It is probably a case analogous to what is called "writer's palsy," or properly, spasm.

"On December 1, 1860, we recorded a case from Dr. Brown-Séquard's practice. A man, aged 33, was unable to write, from spasmodic flexion of the thumb. In this case, the thumb only was at fault, but at one time the whole hand had been affected, just as is now the case in Dr. Ramskill's patient. In both the cases there is a history of former disease of the nervous system. Dr. Ramskill's patient, when very young, had paralysis of the left side of the body, following some kind of fit. He, however, recovered, with the exception of the spasmodic closure of the hand, and that the left leg was not quite so "good" as the right. He appeared, however, to walk well, and his general health was very good."

96. As the exact nature of the poison of erysipelas is unknown, we are not in possession of any remedy having the virtues of an antidote. Neither can any single plan of treatment yet devised be recommended

as equally applicable to all cases, inasmuch as the features of many greatly differ, owing perhaps to the particular diathesis of the subject, or to his state of general health, and the circumstances he was placed in at the time of seizure, or to the peculiar type of the prevailing epidemic. That the last-named circumstance requires to be carefully weighed in every instance will at once be readily granted; for one visit to the majority of the cases of erysipelas of the head and face as now met with, will at once convince us that they are altogether unsuited for the blood-letting and other powerful antiphlogistic remedies which seem to have been so beneficial according to the records of by-gone observers.

On the other hand, that the excessive stimulation so strongly advocated by some for every case of the disease in question, is not an indispensable remedial agency for successful treatment in most instances, may, I humbly think, be reasonably inferred from the multitudes of recoveries which have taken place under a more moderate use of stimulants.

The conviction that erysipelas generally tends to spontaneous recovery is by no means incompatible with holding the belief, that much may be done by suitable treatment to check the intensity of the disease, to alleviate or remove many of its most distressing symptoms, to maintain the vital powers, to moderate inflammatory action, and to assist the natural efforts at cure, and thus more surely conduct the disease to a favorable termination. Examples of the disease often occur, which from the first present a very unfavorable aspect, yet issue in recovery. Such recovery we may justly ascribe to the line of treatment pursued. It is therefore the duty of every one to place on record any plan of treatment which he thinks has been attended with success, and allow it to get a fair trial in the hands of others; to state fairly the effects which appeared to him to follow the employment of any particular remedy, in what respects it modified the intensity of the disease, and what symptoms it alleviated or controlled; without trying to deny that much is done for recovery in this disorder by the spontaneous operations of nature. It has always appeared to me, that in a careful study of this as well as other diseases, we discover certain landmarks or beacons, as it were, to guide us to the adoption of a scientific and rational method of treatment. We find, for example, that the disease cannot be cut short by any known agency, that it must run a definite course, that it early produces a most depressing effect on the system, that there are symptoms more particularly distressing than others to the sufferer, and that in due time Na-

ture employs a machinery of her own for the removal of the noxious matter from the system.

The great indications of treatment, then, suggested by a consideration of these points, are, to uphold the powers of the system, to ameliorate or control the most distressing symptoms, to obviate the tendency to death, and to assist, if possible, the natural efforts at cure.

The first indication is to be fulfilled by removing as speedily as possible any existing internal sources of irritation, by correcting any hepatic or alvine disorder, by rigidly enforcing thorough ventilation, with due regard to the maintenance of an equable temperature and guarding against exposure to currents, and by giving some medicine or remedies capable of imparting tone to the system and of upholding the vital powers. A marked feature of the disease, as already mentioned, is early depression of the various parts of the organism—the energy of the nervous system becoming rapidly exhausted—the vigor of the muscular system being speedily impaired—the tone of the vascular system lowered—the capillaries relaxed, and serous effusions quickly ensuing. I was induced, by the high terms in which many have written in favor of the muriated tincture of iron, recommended by Mr. Hamilton Bell, for the treatment of erysipelas, to try what effect the perchloride of iron might have on the disease. Having given it a fair trial in five successive cases, I will simply state the effects which I observed to follow, in the hope that others may give it a trial, and thus an opportunity be obtained of comparing the effects produced in different cases, and the means be acquired of arriving at some definite understanding as to its value in the generality of cases. In all the cases in which I used it, a decidedly beneficial effect seemed to be produced. The febrile condition seemed in all to be relieved, the frequency of the pulse reduced, the powers of the system generally upheld, and the stomach and bowels in no way irritated. Two circumstances I would particularly notice with regard to the perchloride in the cases in which I tried it. One which I carefully noticed was, that its use seemed in no way to be contra-indicated by headache and sensorial disturbance; instead of increasing, it seemed to diminish these unpromising symptoms. The other circumstance to which I would particularly direct attention is, that in the above cases the serous effusion was, throughout the entire course of the disease, less copious, and also disappeared much more quickly, than in the generality of equally grave examples which I had previously seen.

Two persons, who had a very severe attack, stated to me spontaneously, without my directing their attention in any way to the subject,

that they very speedily felt a most decided general benefit from its use; and the others, on inquiry, said they "felt it keep down the fever" and speedily diminish the "tightness" of their face.

The taste of the perchloride is to some very unpleasant, but it may be quickly removed by thoroughly washing out the mouth with water immediately after taking the solution. Special attention ought to be paid, during its employment, to act on the bowels from time to time by some very mild laxative. What its specific mode of action is, I do not pretend exactly to know. Perhaps it may act beneficially, in virtue of powerful tonic properties, or its therapeutic value may reside in some peculiar influence it exerts on the blood, in consequence of its powerful disinfectant properties, or in its imparting tone to the capillary system, and counteracting the general relaxation of the capillary vessels. In the cases in which I used the medicine, I ordered it to be taken in quantities varying from fifteen to twenty drops every two and a half or three hours, according to the peculiarities of each case. This was persevered with till convalescence was fairly established, after which the iron was greatly reduced, and drachm and a half or two drachm doses of liquor ammoniæ acetatis ordered to be taken three or four times a day at proper intervals. The liquor ammoniæ acetatis acts very beneficially in the convalescent stage, by being a very gentle stimulant to the nervous and vascular systems, a mild diaphoretic, and an unirritating diuretic; and thus, by gently stimulating the functions of the skin and kidneys, it fulfills the last-named indication of treatment. In the course of any attack of erysipelas, just as in all fevers, the lowering effect of the disease may become so great, and the tendency to death, from failure of the vital powers, so strongly marked, as imperatively to call for the use of powerful stimulants. The employment of these agents, in this and in all diseases, to be beneficial, requires the greatest prudence and judgment in their selection and apportionment, and the most careful watching of the effects they produce. The exact form of stimulant, whether wine, brandy, or other spirit, must be determined by the particular situation of each individual case, and the previous habits of the patient.

The delirium and coma which so often accompany erysipelas are, according to general consent, the result of diminution or arrest of the cerebral energy, caused by mal-nutrition of the brain substance, and to be treated most successfully by the cautious use of stimulants. Cases, however, may occur in which some of the symptoms of genuine phrenitis appear, and then it might be judicious to employ some form of local depletion.

The bronchitic attacks are to be treated by mustard cataplasms, blisters, or turpentine stupes to the chest; but the two latter I have once or twice seen irritate the renal organs very much in this disease. Should the attack supervene when the system is very low, stimulants must be given; but if during the period of convalescence, some simple stimulating expectorant, in addition to the counter-irritation, generally suffices for cure. If symptoms of œdematous effusion into the submucous tissue of the glottis and epiglottis arise, the speedy performance of tracheotomy affords almost the only chance of saving life. Of all local applications, perhaps the most serviceable and least objectionable, under all states of the skin, are flannels wrung out of hot water. This application, no doubt, is open to the objection of requiring almost constant attention, and of occasioning considerable trouble for its proper employment; but its advantages in many respects over unguents, dry powders, or other appliances, more than compensate for these slight drawbacks. When proper precautions are taken to maintain a uniform heat, by frequent renewal of the flannels, the application possesses the great advantages of being cleanly, generally agreeable to the feelings of the sufferer, unirritating to the skin, calculated to prevent any repression of the external inflammation, and not forming, as unguents and powders do, with any exudation which may have taken place, the scabs and crusts which become sources of great local irritation, and general discomfort to the invalid.

97. As a general rule, nothing can be easier than the cure of scabies. The principle to be kept in view is, to make such applications to the skin as will not irritate it too much, but which will reach the parasite and kill it; after which, the exciting cause of the disease being removed, the secondary eruptions generally disappear without treatment. In some cases, however, when these are very severe, as, for instance, when large ecthymatous pustules have been developed in abundance, it may be necessary to allay them before applying a parasiticide, which is necessarily more or less irritant in its nature. This is done by antiphlogistics, warm and emollient baths, (prepared by putting a couple of handfuls of potato-starch into a warm bath,) and cataplasms locally, while opium (internally) is sometimes necessary to allay the itching for a time, and the desire to scratch the skin consequent upon it. The preparation to be used, and the manner of its employment, must vary according to the degree of delicacy of the skin of the patient, for in the case of those whose cutaneous envelope is fine and sensitive, it is much better to take a little longer time to

destroy the acari, than, by irritating the skin too much, to risk the production of manifold, annoying, and often obstinate eruptions.

In healthy adults, such as one frequently meets with amongst the working classes, whose skins are coarse and not over-sensitive, who are not subject to cutaneous eruptions, such as eczema, and in whose cases the secondary eruptions produced by the scratching are not very severe, the treatment recommended by Hardy, the most rapid and the most effectual in killing the acari, may be put into practice. The *whole* body of the patient is first of all thoroughly scrubbed with good black soap, and this process should be continued for half an hour. He is then put into a warm bath and kept there for half an hour also, after which the *whole* body is rubbed over with the following modification of the pomade of Helmerich: R.—Subcarbonatis potassiæ, ʒj.; sulphuris, ʒij.; axungiæ, ʒxij. The next morning the patient takes a warm bath to remove the pomade, and the cure is complete as regards the destruction of the acari, while the secondary eruptions soon disappear. The genuine pomade of Helmerich is one-third stronger, but it is rather too irritant. The potash in the black soap and in the pomade acts as a dissolvent to the epidermis, thus allowing the sulphur to come into more immediate contact with the acarus, while, at the same time, it is an irritant to the insect. The warm bath is of service in washing off the black soap and dirt, and in causing the removal of the softened epidermis. Patients in private practice will often be intolerant of this kind of treatment, and it is besides quite inapplicable to children and females, and to men who have delicate skins, as well as to those who are subject to constitutional affections of the skin. In these cases we must use milder means, although the destruction of the parasite is a slower process. It is better, however, to proceed slowly and surely, than, by means of powerfully irritant treatment, to kill the acari at once, and, at the same time, to produce eruptions which may last for months. Under these circumstances the patient should clean himself thoroughly in a warm bath with ordinary (being much less irritating than black) soap, and then the lotion recommended by Vleminckz, of Belgium, with which the Belgian army is treated, should be applied. It is the following: R.—Calcis, ʒss.; sulphuris, ʒj.; aquæ, ʒviii. Boil and stir constantly till a homogeneous mixture is produced, then pass it through a sieve. This quantity is more than sufficient for one person. Some of it should be rubbed into the skin, but not too roughly, and it is much less irritant than Helmerich's ointment. The application is to be repeated every night

for several evenings, and the parasite dies, without secondary eruptions being produced.

Hebra's modification of Wilkinson's ointment is a very good one, especially so when the person affected is predisposed to eczematous eruptions, or where the scratching has already brought them out. It is the following: R.—Sulphuris, olei fagi, āā., ℥vj.; saponis viridis, axungiæ āā., ℔j.; cretæ, ℥iv. M.

In this preparation the potash in the black soap acts, as before stated, as a dissolvent to the epidermis and the chalk in removing it mechanically, the tar counteracts the tendency to, or cures the existing eczema, and the sulphur destroys the acari. This ointment should be well rubbed in, after the skin has been prepared for it by cleaning the body with common soap in a warm bath. The patient may either wash off this ointment soon afterwards, or may leave it on over night and wash it off in the morning, in which latter case the cure is more rapid. In either case, however, more than one repetition of the above process is generally necessary to effect a cure.

When females or others with delicate skins are affected, and when the smell of sulphur is objected to, sulphur soap may be used, which is nicely scented, and the disagreeable odor concealed. The body should be scrubbed every night with it in a warm bath. This is the mildest of all the methods of treatment, and requires to be frequently repeated to effect a cure.

Or, instead of the above, the ordinary sulphur ointment may be used, adding to it an aromatic oil, as oil of lavender, oil of caraway, or oil of cinnamon, in the proportion of a scruple to an ounce of the ointment. It will be seen that all these applications contain sulphur as the active agent in the destruction of the parasite. Other substances also destroy it; but sulphur has been almost unanimously decided to be the most effectual.

I do not think it necessary to discuss the experiments which have been made on the length of time various preparations take to kill the acarus, after the removal of that insect from the body, because it is found to be one thing to kill the insect when it is brought into immediate contact with the medicine, and another to destroy it when it lies imbedded in the epidermis.

But whatever preparation is used, it is necessary that it be rubbed into the skin of the *whole body*, with the exception of the head, which is not usually attacked; for if one impregnated acarus is left unscathed, the disease will soon be as bad as ever.

It is needless to refer to any more of the very numerous methods of

treating scabies, for, with the above selection, any case of scabies may be successfully treated.

Finally, it is necessary to destroy the insects and eggs, attached to the clothes of the affected person. For this purpose they should be exposed to hot air (at the temperature of 150° F.) for some time; or, if washing clothes, they should be put into water which is nearly boiling, in which the acari cannot live. For this purpose, also, they may be exposed to the action of sulphur vapor; but this is apt to discolor the clothes, and to give them a disagreeable odor.

In the treatment of Scabies Norvegica, the crusts may be removed by repeated baths, opiates being given in the intervals to allay the itching. A parasiticide, containing sulphur as the active agent, and tar to counteract the eczematous eruptions, should then be used. It is not necessary, however, to enter into minutiæ with regard to this variety, for it is merely an exaggerated form of scabies, and one which is decidedly rare; while each case must be, more or less, treated on its own merits.

98. Hippocrates and Celsus have already recommended the use of cold in fresh wounds of every kind; but this remedy shared the fate of many of our most important medicaments, being at several periods recognized and recommended by the most eminent surgeons of their time, and then again falling into oblivion. In recent times it has been again taken up and extensively employed, especially in military surgery. It has proved to be one of the best antiphlogistic remedies, without which (says M. Esmarch) he would throw up surgery altogether. There are still, however, many surgeons who do not employ cold at all in inflammation, and who believe that its use causes gangrene, phlegmone, tetanus, rheumatism of the joints, inflammation of internal organs, etc. This fear of the application of cold is certainly either inherited from the teacher, or it is due to the bad results which follow an injudicious employment of cold. Failure in such cases can as little deter the surgeon from using it in practice, as the deadly effect of large doses of opium will ever induce the physician to strike this remedy out of the Pharmacopœia. In whichever way cold may be applied, its proximate and immediate effect is always that it withdraws more heat from that part of the body acted upon than it would lose under ordinary circumstances. This withdrawal of heat is a strong local stimulus, and effects as such an energetic contraction of the organic muscular fibres of the skin and the blood-vessels. If the application of cold is soon afterwards discontinued, the blood-vessels again dilate, and more blood is carried to the parts; but if it is employed for any length of time, less blood is supplied, and the

local metamorphosis of matter is limited, because the tissues of that part of the body which has been subjected to the action of cold gradually assume so low a temperature, that the chemical processes within them are more or less impeded. Elevation of temperature, however, is, according to the most recent researches, one of the most important symptoms and the chief element of inflammation; the increased temperature is only caused by an increased metamorphosis of matter, and by a larger supply of blood to the vessels of the inflamed part. It is, therfore, evident that cold, dimimishing as it does the temperature of the inflamed parts, and cutting off the sources of the abnormal local heat, is one of the first antiphlogistic remedies, the action of which is, however, not confined to the local process. We may, in fact, if we apply cold for a certain length of time, and to a sufficiently large part of the body, even diminish the morbid heat of the whole blood, (fever,) as the blood which is propelled from the heart through the vessels of the cooled parts has continually a large amount of its heat abstracted; so that at last the thermometer, applied to any part of the body, shows an evident diminution of temperature.

We may employ cold either wet or dry; the former by means of wet fomentations, immersion and irrigation, the latter by means of bladders and bags. The most common method is that of bandages, cooled either with cold water or ice; this is the least certain way, for if they are not very frequently renewed they prevent the radiation of heat from the parts, and therefore increase, instead of diminishing, the heat; but if they are changed very often, the temperature may be permanently diminished. The continual touching and troubling of the inflamed parts, the almost inevitable wetting of the linen and blankets, and the injurious results consequent upon this, are, however, so serious drawbacks, that this method should never be employed, at least not in severe cases.

The local bath, or the immersion into, and the irrigation with, cold water is much more useful. The withdrawal of heat is, by both these methods, very considerable, as during irrigation new quantities of cold water come continually into contact with the surface of the inflamed part, and during immersion currents are produced in consequence of the heating of those layers of water which are nearest the immersed part, so that the colder layers come continually in contact with the surface of the immersed part. For this reason, the water must not be of too low a temperature, as otherwise freezing would follow. Warm baths of 80° to 94° F. are, therefore, in this sense antiphlogistic, as there is still a considerable difference between the temperature of the body

and that of the bath. One inconvenience of this mode of application is, however, that we cannot prevent the effect of wet, which is generally not at all desired. Swelling of the epidermis, imbibition of the wounded surfaces, and rheumatic pain, frequently come on, in consequence of the cooling of neighboring healthy parts; the pain especially becomes sometimes insupportable to the patient; besides which, both these methods can, unless very complicated contrivances should be at hand, only be used for the extremities, and even in them only up to the upper third of the arm, and below the knee, so that the inflamed parts must generally be kept in an inclined plane. These are inconveniences which very much diminish the value of these two methods.

The most certain and least inconvenient way is to employ dry cold by means of bladders or bags of vulcanized india-rubber, filled with ice, which are far preferable to animal bladders; these latter are not quite waterproof, and after some time begin to smell offensively. They are likewise better conductors of heat than india-rubber, so that freezing may be the consequence if they are employed for any length of time. Another advantage of these bags over animal bladders is their durability, as they will, if carefully used, last many months, and are therefore very suitable for hospitals.

When no ice is to be had, M. Esmarch recommends the application of dry cold by means of reservoirs made of such matter as conducts heat well, as glass or metals, and which are to be filled with water, which should be frequently renewed.

In treating poor patients, M. Esmarch has often employed common medicine bottles filled with cold water, well corked up, and changed as soon as they became warm. These may be used in the axilla, the palm of the hand, the inguinal region, and on the neck. The forearm and the calf may be placed on wine-bottles filled with water; on other parts, as the chest and abdomen, flat gin-bottles should be used. For the back and the nape of the neck, boxes of thin sheet-iron are suitable, one surface of which is made so as to fit closely the part of the body. These are filled with cold water by means of a funnel and emptied by means of a siphon, as soon as the water has become warm.

The constant withdrawal of heat should be resorted to in all acute and violent inflammations, especially of important parts, either superficial or internal organs, such as the heart, the lungs, etc. In many cases of chronic inflammation, especially of the joints, cold has also been found so efficacious that it ought not to be neglected.

As to the time during which the cold should be employed in a given

case, it is not well to limit it to the first stage of inflammation, but it ought to be continued even if suppuration and gangrene (when due to violent inflammation) have set in, as these processes take a much more favorable course when treated by cold than by cataplasms. The sensations of the patient have to guide us in the question how long the cold should be continued at a time. If the withdrawal of heat becomes unpleasant, or if rheumatic pains come on, the application of cold must be discontinued.

99. Dr. Mattei relates the details of a case of extra-uterine gestation which occurred in his practice, and states the following results of his examination of the details of 100 recorded cases, references to most of which he furnishes. Of the 100 women, 12 died accidentally, after having retained the result of pregnancy during several years; 5 died in consequence of the accidents of pregnancy, without the cyst having opened externally. In 37 instances an opening was made into the cyst through the abdominal walls—viz., spontaneously in 21, (20 of these women recovering,) in 7 with the concurrence of art all recovering, and in 9 by gastrotomy, all recovering. In 8 cases the opening took place into the bladder, 2 of the women dying. In 7, into the vagina, the opening being spontaneous and fatal in 2, and artificial, with 4 recoveries, in 5. In 31 cases the opening took place into the intestinal canal, either with the intervention of art or not, and of these 12 recovered and 19 died. The author's conclusions are: 1. Old extra-uterine pregnancies allow of life being prolonged for many years, but such cases are rare, (12 per cent.,) and are especially met with when the fœtus dies at an early period, and when the cyst has remained of small size. 2. Extra-uterine pregnancy may (5 per cent.) become the cause of death without the cyst opening externally or into a mucous membrane. 3. Whether the cyst gives rise to accidents prior to or subsequent to its being opened, it is not easily tolerated by the economy, and is expelled in more than a third of the cases in from one to two years, in a sixth between two and five years, and so on in decreasing progression. 4. Of all the modes of termination, that by an opening through the abdominal walls, whether spontaneous or artificial, has been the most frequent (38 per cent.) and the most favorable, serious inflammatory accidents and resorptions scarcely ever occurring. 5. Opening into the bladder is rare, (8 per cent.,) and less often followed by recovery. 6. That into the vagina is somewhat rarer still, (7 per cent.,) and what is surprising is, that it is much oftener fatal, especially when art does not intervene. 7. Opening into the intestine is of frequent occurrence, (30 per cent.,) and is the most fatal of all terminations, three out of five women dying.

8. It is imprudent to treat these cases by expectation, unless, indeed, the cyst is small; and even then it must be at once evacuated, when there are symptoms of an opening taking place, such as sudden change in the health, fever, rapid emaciation, the disappearance of fluid from the cyst, local signs of reaction, and especially diarrhœa. 9. When there is time to wait, it is best to open the cyst at different stages, caustics being often preferable to cutting instruments. 10. If we have the choice of the place where the aperture is to be made, this should be in the abdominal parietes; but if Nature has commenced the eliminating process at any point, it is there we must act, and that as promptly as possible, especially if this be the intestine.

100. Paul Dubois recognizes two varieties of rigidity of the os uteri, *spasmodic* and *mechanical*. The spasmodic is the most common; the vagina as well as the cervix being hot and dry, and the os thin, hard and unyielding. In mechanical rigidity the cervix is hard also, and feels much like unimpregnated uterine tissue. As to treatment, in the first variety, when the woman is quite robust, a small bleeding will be of great benefit; when not so robust, a prolonged bath. Extract of belladonna smeared on the cervix does not, according to Dubois, deserve a great deal of confidence, though it seems he frequently makes use of it. [He does not speak of its employment as a prophylactic.] The treatment that he prefers and most recommends consists in making small incisions with a guarded bistouri. A little blood flows, and the delivery soon occurs; labors which had lasted for forty-eight hours sometimes terminating in a few minutes after the operation, and no ill result ever following. In mechanical rigidity the same course is recommended; indeed, no other means, he says, should here even be first tried, as the incisions soon terminate the labor depending for the delay on this hindrance, while rupture of the uterus may occur if the case be left to nature.

101. Charrière has arrived at the following conclusions from a careful examination of one hundred pregnant women indiscriminately, as they offered themselves to his notice. The observations were undertaken to test the accuracy of Cazeaux's assertion, that seven-eighths of all pregnant women had ulceration of the neck of the womb. (1.) Leucorrhœa precedes and gives rise to ulceration of the cervix. (2.) The congested conditions and processes of hypertrophy taking place in the pelvic organs are the causes of this leucorrhœa. (3.) At first a physiological condition, it may become morbid under the influence of a bad state of health. (4.) Nearly two-thirds (72 per cent.) of pregnant women have leucorrhœa. (5.) Nearly eight-tenths (56 of 72)

of these subjects of leucorrhœa have ulcers of the cervix. (6.) Of these 56 women, 41 were multiparæ. (7.) For the treatment, we should confine our attention to the general condition, giving mild aperients and preparations of iron, and remedying disorders of the digestive organs. Local treatment would doubtless frequently induce abortion.

REVIEWS AND BIBLIOGRAPHY.

A Practical Treatise on the Diseases of the Sexual Organs of Women. By F. W. VON SCANZONI, Prof. of Midwifery and Diseases of Females in the University of Würtzburg; Counselor to his Majesty the King of Bavaria; Chevalier of many Orders. Translated from the French of Drs. H. DORR and A. SOCIN, and annotated, with the approval of the author, by AUGUSTUS K. GARDNER, A.M., M.D., Prof. of Clinical Midwifery and Diseases of Women in the New York Medical College; Author of the Causes and Curative Treatment of Sterility; Editor of Tyler Smith's Lectures on Obstetrics, &c. New York: Robert M. De Witt, pp. 669. 1861.

No branch of the profession of medicine has within the last half century (which may truly be styled its Augustan age) advanced with more rapid, certain and enduring paces, than that which has of late received the name of Gynecology. More perfect means of diagnosis have thrown floods of light on conditions which before their adoption were surrounded by the mists of uncertainty, while the study of the class of diseases peculiar to the female being made a special field for investigation, has resulted in a more extended, intelligent and accurate pathology, which has served to remove them from the domain of empiricism, and bring them into that of exact therapeutics. What the microscope has done for diseases of the kidney, and physical diagnosis for those of the heart and lungs, the speculum, aided by the uterine sound, has accomplished for affections of the uterus and its concomitant viscera; and now, instead of surmising as to the existence of a diseased condition of these organs, the favored modern obstetrician reduces his suppositions to certainty, by processes as reliable in their revelations as those by which the surgeon ascertains the nature of the injuries inflicted upon a bone or joint. In a short space of time much has been accomplished, and yet this branch of our art has been so far by no means fully developed, and the labors of hundreds of capable and devoted investigators are daily adding to our store of knowledge and means of relief.

Large numbers of works have been given to the profession by its most gifted pens, and so rapidly do monographs upon it accumulate that he must needs be a most industrious student who keeps pace with the rapid march of this single branch. The latest addition to the works upon this subject is that whose title heads this article, and into its merits we now proceed to enter.

The original lectures of Scanzoni were translated into French by Drs. Dorr and Socin, and from the French into English by Dr. A. K. Gardner, of this city. This rendering into a second language before being given us in our own is likely at first glance to strike the examiner as a disadvantage, but an examination of the work before us will, we think, convince him to the contrary. In every country there is a great deal of unwritten experience, many unpublished views, and numerous points of therapeutic value, which, spite the facility of international communication, travel but slowly from land to land. By the triple publication through which this work has passed the English reader becomes informed upon the most recent views of three nations, and the work, by a species of literary accretion, becomes trebly complete and comprehensive. On the other hand, no one will doubt, who examines the text, that the American translator has faithfully rendered the author's meaning, and given in their integrity his precepts.

The work is divided into seven parts, and these again into chapters, articles, and sections.

Part 1st is devoted to the consideration of the pathology and therapeutics of diseases of the uterus, occupying 356 pages.

Part 2d, consisting of ten pages, treats of the pathology and therapeutics of the diseases of the ligaments of the uterus.

Part 3d treats of the pathology and therapeutics of the diseases of the Fallopian tubes.

Part 4th treats of the pathology and therapeutics of the diseases of the ovaries, 98 pages being consumed in it.

Part 5th treats of the pathology and therapeutics of the vagina.

Part 6th relates to the external organs of generation, and Part 7th to the diseases of the breast.

All this is arranged in a manner at once simple and methodical, which adds much to the facility of reference, and prevents confusion in the mind of the student. The important points of the subject-matter, and words which indicate the subject of the text, are put in heavy black type, which at once arrests and fixes the attention, so that by hastily glancing over the pages the thread of the work may readily be followed.

In addition to these advantages, a comprehensive and practical index (a point apparently above the grasp of the French mind) completes the ease with which the American edition of Scanzoni may be consulted.

A very superficial examination of the text will suffice to convince the reader that our author is by no means an amateur; every part of the work bears the stamp of a practical and experienced physician, whose investigations have not been confined to the closet, but made at the bedside.

The obstetric practitioner will be pleased to see that, wherever practicable, pathological conditions, developed by autopsic research, are systematically introduced—a portion of the subject too often neglected, even by some of the latest writers in this department.

Having made some general remarks upon the symptoms of uterine diseases, the author thus enumerates the physical means of diagnosis:

Palpation.
Inspection and auscultation.
Vaginal touch.
Rectal "
The speculum.
The uterine sound.
Sponge-tents.

In speaking of the rectal touch, he says, "We ought invariably to have recourse to it when having to do with the diagnosis of a displacement of this organ, a fault in conformation, or any species of tumor."

It need scarcely be said that he is an advocate for the judicious use (although opposed to the abuse) of the speculum; to say otherwise would be to brand him as one who had been left behind in the race, and destroy the confidence of all progressive gynecologists in his views. He opens the subject thus:

"The introduction of the speculum into the practical treatment of the diseases of females is an attainment of our day: it has inaugurated a great advance not only in the diagnosis, but in the therapeutics of the diseases of the genital organs. In fact, without the aid of this instrument the successful and rational treatment of a great number of these diseases would be as impossible as those of the heart and lungs without auscultation and percussion. We, however, have no intention of claiming that the speculum is indispensable for the diagnosis of all the affections of the uterus and the vagina. Still, it

is not uncommon for the practitioner who uses this instrument to discover morbid changes, of which at first he had not perhaps even suspected the existence, but which it was important for him to know in order to treat his patient with success. We will cite but a single example from the numerous cases which enter into this category. A woman suffers for a long time from an abundant flow of mucus, with which occasionally a greater or less quantity of blood is mixed. Manual examination discovers only a great relaxation of the vaginal walls, with a slight tumidity of the neck. The physician who rests his diagnosis upon these facts, orders divers medicaments, extolled for the treatment of leucorrhœa—injections, hip baths, *cures de bain*, etc. —up to the time when the slight results which he has obtained induce him finally to have recourse to an examination with the speculum. It is not till then that he discovers the veritable cause of the persistence of the disease. He recognizes that the increased secretion has its origin in the uterine cavity, which is inaccessible to the medicaments he has employed; he perceives the excoriations on the margin of the orifice, bleeding at the slightest touch; and the knowledge of these new facts permits him to begin a course of treatment which will cure the patient of her ills in a comparatively short time."

The instruments which he recommends are the ordinary glass speculum of Ferguson, and the valvular ones of Ricord, Segalas, and Charrière, all of which, except the first, are far surpassed by those of Tieman and Sims, which the translator introduces.

Of the uterine sound he seems to have a wholesome fear. "We would be far from denying to the sound all claims of utility for certain diagnostic or therapeutic purposes. Still, a long use of this instrument, continued during several years, has convinced us that the advantages which it promised in its principle are not so numerous or so great as one might be led to suppose. If, in our days, some practitioners suppose that exploration by the sound is indispensable for the certain diagnosis of the greater proportion of uterine diseases, we are convinced that this modern opinion will, for good reasons, be soon renounced for more true ideas on this subject.

"In the first place, the use of the uterine sound is by no means so harmless as has been asserted. One may have all the familiarity and dexterity possible in the management of this instrument; but that will not at all prevent that, in certain cases, its introduction into the cavity of the womb will be met with great difficulties, and will cause irritations more or less serious, and lesions of the mucous membrane. A

good number of cases are known where the uterine sound, even in the hands of the most skillful and most celebrated practitioners, has excited abortions, caused violent uterine colics, and even metritis and peritonitis, seriously compromising the life of the patients. In consequence, even were the sound capable of giving the most important knowledge, in a diagnostic point of view, the physician would be bound to use the greatest prudence in its employment. How much the more now that we are convinced that its utility is at least very secondary! For it is undoubted, that the employment of this instrument will very rarely assist to establish the diagnosis of diseases which other modes of exploration cannot enable us to determine." The sounds recommended are those of Kiwisch, (which closely resembles Simpson's,) and that of Valleix. It is with surprise that we notice here an important omission on the part of the editor in not mentioning the sound of Sims, and that of Tieman, which is by far the best now used, according to our experience.

The sponge-tent he advises to be applied thus: "A metal staff, fixed in a handle, of the length of nearly 10 to 11 inches, and bent at an obtuse angle at 1½ inch from its extremity, is thrust into a cone of prepared sponge 2 inches long After having previously introduced the index finger into the vagina, the instrument is glided upon the pulp of the finger, the sponge is engaged in the orifice, and then it is gently pushed into the neck. This swells little by little, and dilates the neck. At the end of twenty-four hours the sponge is withdrawn, and a second one, larger, is introduced, until the dilatation of the canal shall be sufficiently considerable to admit the introduction of the index into the cavity of the body. The presence and nature of a foreign body can then be directly recognized by the touch."

A general *résumé* of therapeutic means which he advises gives us sanguineous emissions by leeches or scarifications.

Use of caustics: solid, as nit. argt.; or fluid, as sol. nit. argt.; acid. nit. hdg.; tr. iod.; acid. pyrolig., or concentrated sol. of alum.

Use of ointments, as in medicated pessaries, containing mercury, zinc, lead, narcotics, &c., &c.

Use of vapor of chloroform; and the editor adds, injection by Wood's hypodermic syringe into the structure of the uterus itself.

Tamponing the vagina, and vaginal injections.

In alluding to intra-uterine caustic injections, he says:

"It has been feared that a part of the liquid injected might penetrate into the cavity of the peritoneum by the Fallopian tubes, and thus give rise to a more or less intense peritonitis. Although we

have no intention of formally denying the possibility of this accident, we can, however, assert that in the numerous cases where we have adopted this mode of application, nothing like this has occurred. We have observed, it is true, that the injections were followed by violent pains in the regions of the womb and the sacrum; but they had either the character of uterine colics, and were due to the presence of liquid in the cavity of the uterus, or else they had for their cause an acute metritis, communicated from the mucous membrane to the parenchyma of the organ, and occasioned by the shock of a too powerful caustic.

But accidents of this character have disappeared since we adopted the rule not to make injections, save when the cavity of the neck and orifice were sufficiently large to allow the rapid flowing out of the liquid. At the most, the quantity of this should not surpass ʒj. to ʒij. We use small glass syringes, [those lately made of hard india-rubber are far better,] the long and narrow neck of which is bent like the uterine sound. It ought to be pushed up to the fundus of the organ, in order that the jet of liquid gently thrown out should strike there and return along the walls of the cavity towards the exterior orifice."

To this the editor adds the following pertinent note:

"Formerly we were accustomed to throw fluid injections into the cavity of the womb by means of a silver syringe, as described in our 'Causes and Curative Treatment of Sterility,' but the metritis or uterine colic which followed so frequently, accompanied by such serious symptoms, sometimes apparently threatening the life of the patient, made us gladly seize upon a substitute possessing all the advantages without any of the inconveniences and dangers of the former. This we found in the use of ointments, which by means of a canula and piston were pushed into the cavity of the womb. The operation is very simple. The entire instrument is about a foot in length, consisting of a hollow tube of German silver or hard rubber, to which is fitted a piston. Withdrawing the piston, the tube is loaded with as much ointment as may be desired by plunging the extremity forcibly into it. The piston is then inserted up to the ointment. Guiding the instrument thus loaded by the index finger, it is passed through the os uteri into the cavity of the womb. By pressing on the piston the ointment is left in the womb, causing little, if any, disturbance, local or general. We append two formulæ for ointment to be thus used:

℞.—Argent. nitratis,	ʒij.	℞.—Plumbi acet.,	ʒij.
Ext. belladon.,	ʒj.	Morph. sulph.,	grs. iv.
Ung. spermacet.,	℥ij.	Butr. cacao,	ʒss.
		Ol. olivæ,	q. s."

(To be continued.)

TRANSLATED FROM THE FRENCH, EXPRESSLY FOR THE MONTHLY.

Lectures on Diphtheria. (Egyptian Disease.) Delivered at L'Hôtel Dieu, Paris. By M. TROUSSEAU.

(Translated by the Editor from La Clinique Médicale de L'Hôtel Dieu, of M. Trousseau.)

(Continued from page 239.)

Treatment of Diphtheria and of Croup.

All Antiphlogistic Medication must be Absolutely Rejected.—Alterative Medication.—Mercurials useful as Topical Agents: their Disadvantages.—The Alkalines and the Bicarbonate of Soda in particular are of very questionable Utility.—The Chlorate of Potash is Beneficial in Mild Cases.—Emetics have more Disadvantages than real Advantages.—Blisters: their Application is attended with the gravest Consequences.—Topical Medication (Astringents and Caustics) is the Medication, *par excellence*, for Diphtheritic Affections.—Catheterism of the Larynx.—Indispensable Necessity of Strengthening Patients by proper Nourishment and Restorative Medicines.

GENTLEMEN—When it was well established by all physicians that the pellicular affections were in their nature inflammatory; when in respect to croup in particular it was an accepted fact, that it was the result of a phlegmasia of the mucous membrane of the larynx, it appeared, at the first view, rational and easy to check at once this inflammation, which was generally of slight extent. If, indeed, we take into consideration the local lesion alone, a diphtheritic spot developed upon the skin, overspreading even the surface of a large blister, is in appearance but a slight matter; if we examine the throat of an individual attacked with membranous angina, the swelling of the tonsils is very moderate, and the membranous exudation is not at first very extensive. Surely a local disease so circumscribed as this is, and giving rise to a febrile reaction of such insignificance as this at first, should readily yield to a sufficiently energetic antiphlogistic treatment, especially when other phlegmasiæ of far greater extent and intensity do not resist it.

Local bleeding (leeches and cups) and general bleeding, when needed, would seem therefore to be indicated in order to afford a prompt remedy for these inflammations, which are introduced with an appearance primarily so free from danger. Theory is found at fault here also, as it is too often found in other matters in practice. Without doubt, gentlemen, cutaneous diphtheria, membranous angina, and croup, are inflammations; I admit this, as does everybody; but in putting forward this fact we do not sufficiently consider another fact which governs it; we do not give sufficient weight to the specificity of these inflammations. As I have told you, when considering with you this important subject of specificity, specific diseases are personal diseases, over which the medications which we may call physiological have generally but little influence. In the greatest number of cases they make fatal progress. When a variolous pustule has once developed itself, whatever may be the intensity of the inflammation which accompanies it, all the antiphlogistic remedies of the materia medica would not hinder this pustule from running its course. In order to arrest its prog-

ress, you must destroy it by other means. To take the example of an affection which presents a more striking analogy with that we are studying, if a malignant pustule be once developed, general bleeding, applications of leeches and cupping glasses, however frequent and however abundant they may be, will not check the progress of the disease; they will more probably do considerable injury to the patient.

And in the same way in diphtheria, by the very confession of those who, taking a middle course, admit its utility in some cases, the antiphlogistic medication does not overcome the disease. And in my opinion, gentlemen, this utility, which some physicians persist in recognizing, is very questionable. I hasten to add, that a long experience has proved to me that this medication was not only useless, but that it was also essentially injurious in a disease septic in its nature, and susceptible of throwing the economy into a condition of considerable prostration, even when no cause of debility has intervened.

What I have said concerning antiphlogistic medication is equally applicable to the *alterative medication*, which is an adjunct of the former. Now, among the agents of this alterative medication, mercury and its compounds occupy an important place. The mercurials, as you know, are considered as the most powerful antiphlogistics in the materia medica, and perhaps their power is even greater than that of blood-letting. You have seen a hundred times the effects which we obtain by means of them in certain phlegmasiæ of the serous membranes; you are not unaware that this happy influence has been vaunted over those inflammations so very serious by reason of their extent, their seat, or by reason of the febrile reaction which they excite. Well, *mercurial preparations*, calomel given internally, and Neapolitan salve applied by friction to the skin, have been tried in England, in Germany, in America, and in France, under the head of antiphlogistics, in the treatment of diphtheritic affections, membranous angina and croup. The results, I must say, have often been happy. Without the aid of any other medication, calomel administered *fracti dosi*, according to the method of Dr. Law, has cured a certain number of patients.

This, gentlemen, would seem to be a contradiction of the proposition which I have just stated; it is because the subject is a very complex one. Calomel, in fact, mercurial preparations, are an *argumentum bis feriens*. Mercury has two modes of action: on the one hand, it acts generally upon the human economy, and in this case it is an alterative, antiphlogistic medicament; on the other hand, its action is exclusively topical. When you prescribe lotions of phagedenic water for the skin, or of a solution of corrosive sublimate; when you instill into the eye mercurial collyrium, and when you apply to the eyelids moist or dry collyrium with the red precipitate, or the protochloride, or when you give fumigations with quicksilver, you adopt an essentially local treatment, and it is only indirectly that you obtain general effects; you make use of a substitutive medication. It is only at a later period, and by persevering in this treatment, that the mercury acts upon the blood, which it modifies then, after the manner of alterative medicaments. Now, as a topical agent, the protochloride of mercury ap-

pears to me to be really useful in the treatment of diphtheritic affections. Applied upon the pseudo-membranous wounds, it modifies them beneficially; and if in diphtheritic angina it has rendered real service, it has done so by acting in the same manner. When administered in fractional doses (0.05 grammes mixed with 4 grammes of sugar, and divided into twenty powders, one to be taken every hour,) to an individual attacked with pharyngeal diphtheria, it passes, mingled with saliva, across the pharynx, touches the diseased surfaces, and modifies them as it modifies the wounds of the external integument. I do not, however, dispute the general action which this medicament may have, for, absorbed in the digestive passages, it produces considerable effects; it modifies the bulk of the blood, it augments its fluidity, and puts it in such a condition that its secretions may be less plastic than they were before. I dispute this general action so little, indeed, that I fear it, and because the topical action appears to me to be alone useful. When we limit ourselves to making repeated *mercurial frictions*, we very soon bring on that peculiar dyscrasia of the blood; we produce the phenomena which depend upon it, we provoke salivation, and yet in these cases we do not cure the angina. From the very reason of this general action upon the economy, the mercurial treatment is attended with still more danger. As its effects vary according to the individual predispositions, we run the risk of seeing it pass beyond the bounds within which we would restrain it, and in these circumstances we discover the disadvantages of the antiphlogistic medication, which, if it does not immediately aggravate the disease, may prolong convalescence, by augmenting the debility into which, I repeat, the patient will be thrown by the disease itself.

I have now to speak to you concerning other alterative medicaments. Some years ago, Dr. Marchal (de Calvi) published several facts seeming to prove that the use of the *bicarbonate of soda* was advantageous in the treatment of diphtheritic affections. He thus restored to an honorable position the *alkaline medication*, which, extolled for some time, had soon fallen into discredit. The subcarbonate of ammonia, administered as well internally as externally, had been lauded by Rachou, but this medicine, difficult of use and sometimes dangerous, had been abandoned. Chamerlat had prescribed gargles with hydrochlorate of ammonia, and Mouremans had reported in the *Encyclopédie des Sciences Médicales*, for the year 1839, a case of pseudo-membranous laryngitis cured by the bicarbonate of soda. This alkaline medication had been almost entirely abandoned, when Dr. Marchal again brought it into notice; and other practitioners proclaiming in their turn successful results obtained—results in some cases real but purely fortuitous, in others doubtful or very questionable—public attention was called to the treatment of diphtheria by means of the bicarbonate of soda; and soon enthusiasm being aroused, we were not far from believing that we had found in this medicament the specific for diphtheritic affections, and even for croup. Calm observation and sober reflection showed the reason of these marvelous results, and reduced matters to their just value. It was easy, in fact, to see that in the cases in which the alkaline salts had cured

membranous affections, we had had to do with scarlatinous membranous affections. Now, I have told you that scarlatinous anginæ generally pass away of themselves. On this account alone, therefore, the facts lost their importance. The theory, however, had something seductive in it, and I had myself given it a prominent place in my *Treatise on Therapeutics*, when I wrote that it was permitted to hope for some benefit from the alterative and antiplastic action of the bicarbonate of soda, in the modification of the general diathesis which seems to preside over the development of diphtheritic affections. This general action of the alkalines, the peculiar condition of the blood which they produce, is an incontestable fact, demonstrated long ago by our predecessors, and among others by Cullen; but this *alkaline cachexia*—for thus it is called—is produced only upon condition of making use of the alkalines for a long time; and consequently, however prolonged we may suppose the duration of the diphtheritic affections, it is never long enough for the alkaline medication to have the time to produce the antiplastic influence whose effects we await. These effects, moreover, far from having the advantages which it is pretended to obtain from them, have, on the contrary, serious disadvantages, for the alkaline medication incurs the same reproach as the alterative medication, whose dangers I have just now mentioned to you. There still remains, it is true, the topical influence of the bicarbonate of soda, whose dissolving action would aid in softening and detaching the false membranes. A longer experience has taught me not to count upon this topical influence, in which I formerly believed, and which others at the present day admit in their turn. The modifications introduced into the diphtheritic secretions by the alkaline solutions are far from being as powerful as they had formerly seemed to me to be.

There is another medicament, gentlemen, of which much has been said in these latter days, namely, the chlorate of potash. This salt, as you know, discovered about the end of the last century by Berthollet, made its entry, towards 1796, into the domain of therapeutics. In 1819, Chaussier proposed to give it for croup. It had been completely forgotten, when Dr. Blache, profiting by the experiments which Drs. Hunt and West had made in 1847 with this medicine in the treatment of gangrene of the mouth, and in that of membranous stomatitis, was led to try it in the treatment of membranous angina and of croup. Dr. Isambert, at that time assistant to Dr. Blache, followed carefully and intelligently the numerous trials which were made at the Children's Hospital, and took for the subject of his inaugural thesis, *Chemical, Physiological and Clinical Studies upon the Therapeutical Employment of Chlorate of Potash, especially in Diphtheritic Affections*, (*Paris*, 1856.) The first results obtained in the treatment of membranous angina, without being as satisfactory as in ulcero membranous stomatitis, were nevertheless encouraging. Facts and cases multiplied, and although the vogue which the chlorate of potash has enjoyed may have been greatly exaggerated, yet the facts gathered from all quarters authorize us to consider this medicament, if not indeed as an efficacious remedy, at least as being able to render

some service in diphtheritic angina. But in this respect there are some reservations to be made; while we acknowledge with Dr. Isambert that the usefulness of the chlorate of potash in mild cases appears to have been demonstrated not only by a real and definitive success, but even by an entirely peculiar, and in some sort elective action upon the pharyngeal mucous membrane, analogous to that which is observed in membranous stomatitis, we deny its efficacy in the more severe cases. When in such cases I have seen it employed as an exclusive treatment, I have seen it in every instance fail; employed conjointly with other medications, it has seemed to me, without its being possible for me so to affirm, to have a really advantageous action. What I say concerning membranous angina applies with greater reason to pseudo-membranous laryngitis. Doubtless, also, from time to time, some cures of croup may be cited in the case of patients treated with the chlorate of potash, but these cases are by no means conclusive proof, for the reason that generally this remedy has been almost always associated with others, especially with emetics, which of themselves have sometimes sufficed to effect the cure and to explain the success. However, as this medicament is reputed to have a general influence upon the organism, and to hinder the reproduction of plastic exudations, and as it is not attended with the disadvantages which I have pointed out in the alkalines and mercurials, there are no objections to making use of it in so redoubtable a disease. Be careful, however, not to repose too great confidence in its virtues, and especially beware of employing it to the exclusion of other medications, of which experience has shown the efficacy, at least within certain limits.

I must also mention the medication by the *bromide of potassium*, employed in the dose of five to fifty centigrammes, and by *bromine* alone, a medication by means of which Dr. Ozanam declares that he has obtained remarkable success. In view of the too wonderful results proclaimed by the inventor of this remedy, which give rise to a doubt, and bearing in mind also that this physician follows in his practice a pathway which is not our own, we must maintain a prudent reserve; nevertheless, since, in respect to pseudo-membranous affections, experimentation is made on a grand scale in all quarters, there is nothing to hinder experimenting also with bromine.

This medicament and its compounds are not the only ones to which a certain specific virtue has been attributed. I would remind you that the *sulphuret of potassium*, warmly recommended by Lobstein, and Professor Fritz, (of Magdeburg,) in certain cases in which the diagnosis, it is true, was very questionable, has been lauded also by Dr. Maunoir, (of Geneva,) and after him by Drs. Rilliet and Barthez, who mentioned it in their *Treatise upon Diseases of Children*. This medicament is at the present day completely abandoned. I might say the same also of *polygala senega*, which has likewise enjoyed a great reputation, but which, owing to its emetic and purgative action, and the happy effects it has been able to produce, should be placed in the class of therapeutical agents of which I am now about to speak to you.

I come now to those means of treatment of pseudo-membranous an-

ginæ and of croup, which I shall call indirect agents; these are the emetics and the revulsives.

Emetics have been, and still are, regarded by a very great number of physicians as one of the most powerful means which we have of combating croup. If, by the expression croup, we understand stridulous laryngitis, false croup, the history of which I shall give you, emetics are indeed useful, and there are reasons for this upon which I wish to dwell for an instant before you.

Whatever may be the special properties of the emetic medicament which you employ, whether it is the *white veratrum*, violet-root, asarum-root, or polygala, which I mentioned just now; or whether it is sulphate of zinc, sulphate of copper, or tartar-emetic, independently of the emetic effect, you will obtain an antiphlogistic effect. If, instead of having recourse to pharmaceutical means, you provoke vomiting by other means, the results which I mention will be the same. You will excite nausea, that peculiarly disagreeable condition which precedes the rejection of substances contained in the stomach. The pulse becomes small and frequent, the pulsations of the heart are very feeble, the countenance grows singularly pale, the body is covered with sweat; in a word, the patient is thrown for a time, which may be somewhat long, into a condition analogous to syncope; there takes place, in a less degree, something similar to that which happens to some persons after bleeding. You will understand from this, that by reason of a perturbation so profound, acting principally upon the nervous system, certain contro-stimulant effects are produced sufficient to extinguish slight inflammations.

Now, in false croup, the inflammatory element under the influence of which is developed the spasmodic element which causes the attacks of coughing and suffocation which we wish to combat, we can understand that emetics may be useful, since this inflammatory element does not generally go beyond the degree of slight phlegmasia; but when we have to do with an angina with pseudo-membranous laryngitis, matters assume a different face; in those cases we must no longer count upon the contro-stimulant action of the emetic medication, but only upon the mechanical action of the medicament. I will explain myself.

There is not one of us who, having had to treat children attacked with croup, has not noticed in some cases, subsequently to the administration of an emetic, a great amendment in the symptoms; it is because that then, as can easily be proven, the efforts at vomiting, by provoking the expulsion of the false membranes which line the larynx and the trachea, remove the obstacle which these false membranes opposed to the passage of air into the lungs, and render respiration easier. As for the dynamic action to which some practitioners award the honor of the good results obtained, this dynamic action might, at the most, exert some influence upon the inflammatory element which causes the production of false membranes, but it seems to me impossible to admit that it has any influence upon the false membranes themselves. Those who persist in seeing in the emetic medication, and particularly in the employment of tartar-emetic, which they ex-

tol, this dynamic action, in which I refuse to believe, distinctly admit that this action is much less real than they pretend it is, and that the mechanical action is far more efficacious. They insist, in effect, upon the necessity of provoking vomiting, and their statistics establish the fact that patients have no chance of cure except upon condition that they shall have rejected false membranes.

I recommend to you to read what Valleix has written upon this subject, in his *Guide du Médecin Practicien*, and you will see that he reaches the same conclusions as myself. Emetics, therefore, act mechanically; by freeing the air-passages from the membranous concretions which obstruct them, they render some service. We must not, however, exaggerate the effects of this medication. While I employ it always in the hope of obtaining from it the effects that may rightfully be expected, I know also that those effects will be momentary. I know that diphtheria is a disease in which the phlegmasia which has caused the formation of false membranes will last for a limited time; that it will persist after the expulsion of the products which have been once secreted, and will be secreted again. Consequently, if by resuming the same means, if by procuring the expulsion of the false membranes as soon as they are formed, I prevent the approach of death by asphyxia, although I may not cure the patient directly, I at least employ a useful treatment, since by prolonging the days of the patient, while the diphtheritic phlegmasia runs its course, a time will come when this phlegmasia will pass away of itself, and recovery will be the result.

The choice of emetics is moreover by no means an indifferent matter. Tartar-emetic, so extolled by some, seems to me the most dangerous of all. Very justly has Dr. Millard, in his excellent thesis upon tracheotomy, insisted upon its disadvantages. This emetic, in effect, often produces serious accidents, rebellious vomitings, choleriform diarrhœas; it plunges the patient into a condition of extreme prostration, and often hastens the fatal result. Experience at the present time has sufficiently shown the dangers which I point out. The sulphate of copper, which does not deserve the blame it has incurred, is the means to which I have most frequently had recourse, because by administering it according to my method, that is to say, in fractional doses, we are less likely to pass beyond the goal which we wish to reach.

But whatever may be the utility, under certain circumstances, of the emetic medication, we do not accord to it too great confidence. After a very long practice, after having seen a great number of persons, both children and adults, attacked with diphtheritic anginæ and croup, I can certify that the failures have greatly surpassed the few successes of which I have been a witness. Even when, after having given emetics, you shall have obtained a noteworthy amelioration in the accidents which you wish to combat, never forget that these accidents will make their appearance anew; often, in a very short space of time, the difficulty of breathing, the attacks of suffocation which you have checked, will reappear, because new false membranes will have been secreted. If a second time you are so fortunate as to provoke

their expulsion, a third time the same means will fail you, and then take care lest, by having too often excited nausea, you may have thrown the patient into such a state of debility that he may no longer have sufficient strength to struggle against the disease, when it shall become necessary for you to resort to tracheotomy.

Graves extolled the good effects of the *revulsive medication* in croup, but his observations evidently refer to cases of stridulous laryngitis. The method lauded by the eminent clinicist of Dublin is, indeed, of great utility in false croup; I have already set it forth to you when speaking of the complications of measles; I shall return to it again when we come to speak of false croup, and I will then tell you that blisters also in those circumstances have their utility, although their action may be milder than that of the warm water employed by Graves.

But when we find ourselves in the presence of true croup, when we have to do with laryngeal diphtheria, *blisters* are not only useless, but their application is also too often the source of accidents of the greatest severity. Let us only think of it for one moment, and we will readily understand how absurd it is—the expression is not too harsh—to hope for anything from blisters in this affection. Let us imagine the false membrane lining the larynx, and that is generally the condition in which it is found, for no one would ever think of applying the cantharidian plaster before there is extinction of the voice, oppression, and paroxysmal suffocation; let us imagine, therefore, the false membrane existing in the larynx, it is no longer a question then of contending against the phlegmasia which has been the cause of these membranous secretions, for we have to do with a foreign body obstructing the passage of the air in the respiratory tubes; the false membrane is nothing else. What can we pretend to do with revulsives, with blisters, whose action is essentially dynamic, against a lesion entirely mechanical?

It would be of as much avail to apply them to the neck of a child suffocated by a bean which had passed into the trachea. Assuredly you would consider as insensate the conduct of a surgeon who would thus act in such a case, and yet this surgeon would not be doing otherwise than does a physician when he hopes to cure croup by means of cantharidian revulsives; there is this enormous difference however, that in the first case, if the treatment is useless it will at least do no harm, while in the second case, the resulting effects may have the most terrible consequences. I must insist upon this point.

I have told you, gentlemen, in detailing the history of diphtheria, that a wound, that the smallest solution of continuity of the integuments, may be the seat of new manifestations of the disease in an individual attacked with membranous angina. I have told you that it was only necessary that there should be in a family a child affected by croup, or pseudo-membranous sore throat, for the diphtheria to be communicated to others up to that time in good health, but who had upon some part or other of the body a sore, which afforded an entrance to the contagion. You will see, indeed, in the case of children to whose arms blisters may have been applied in order to combat ca-

tarrhal affections, as is often done, whether the physicians have ordered it or not, you will see these blisters becoming covered over with false membranes when these children are in the midst of the diphtheritic contagion. Then, as I have taken care to point out to you, the membranous affection becomes extended beyond the limits of the denuded surfaces. I have cited several instances in which, as in that reported by Samuel Bard, the diphtheritic affection developed upon a blistered spot, and gradually increasing, covered a great extent, and occasioned fatal accidents. If these accidents occur on account of a sore in the case of those who have not yet been brought under the dominion of the diphtheritic diathesis, for still stronger reasons, will there be cause to dread them in the case of those persons who may have already given manifestations of it. I have related to you the case, among several others, of the young man who, at the moment at which he was recovering from croup, was carried off ten days later by cutaneous diphtheria, which developed itself upon a blister that had been placed on the forepart of his neck, and which, progressively spreading itself, had finally entirely covered over his breast as with a huge plaster of false membranes. It matters little, moreover, in what part this denuded surface may be; whether you place the blister on the nape of the neck, whether you apply it to the anterior portion of the neck, or on the forepart of the breast; wherever it exists this denuded surface may be invaded by the pellicular affection, and become the cause of a complication against which you will sometimes have great difficulty in contending. During ten, twelve, fifteen days, and even more, you may have combated it by means of the most energetic cauterizations, you may believe you have mastered it, when there will manifest themselves the symptoms of a general intoxication, of that malignant diphtheria to which your patient will succumb, do what you will. I am willing even to admit that death will not come in this way; but from the very reason of the extension which the diphtheritic inflammation may have given to the sores which it has attacked, the sores will become, after the cure of the principal disease, the seat of vast suppurations, which may kill the patients by exhausting them by hectic fever. I beg you, gentlemen, and all true practitioners agree upon this point, do not, under any pretext whatever, apply blisters to patients attacked with membranous angina or with croup, and whenever you find them applied, hasten to use the most energetic efforts to modify these sores by means of topical remedies.

Topical medication, in spite of the opposition which it meets with at the present day, is the medication *par excellence* in the treatment of diphtheria; it is equally indicated for this disease as it is for malignant pustule, and I have already insisted upon this capital point. Independently of the mercurial preparations of the red precipitate, which I have sometimes employed, and of the protochloride of mercury, of which I have spoken as modifiers of the surfaces invaded by the pellicular affection; independently of these mercurial preparations, and better than they, the astringents and caustics are the agents of this medication. From time immemorial it was the first employed. As M. Bretonneau has judiciously observed, it is to the period in which

the disease was known under the name of *Egyptian disease* that we have to go back also for the title of *Egyptian onguent*, a solution of verdigris in honey (*mel cupratum*) which was given to a preparation eminently anti-diphtheritic. Read the chapter of Aretus: *De curatione pestilentium in faucibus morborum*, and you will see that he recommended not only the application to the parts of lotions made of acrid medicaments, *(illitiones acriorum medicamentorum faciendæ sunt,)* but also to attack the disease not exactly with fire, the application of which he regarded as a difficult thing, but with medicaments similar to fire. *Porrò igne vitium adurere, cum in superiori parte sit imprudentis esse propter isthmum judico. Sed medicamentis igni similibus quo depastio coerceatur utendum præcipio.* He prescribed alum incorporated with honey, galls, the dried flower of the pomegranate-tree mixed with mead and calamine; he insufflated these substances also into the lower part of the throat with a reed.

You see, gentlemen, that the means we employ at the present day are far from constituting a new mode of treatment for diphtheritic anginæ. It is a cause for surprise that this powerful medication of Aretus has remained so long a time forgotten. In the 17th and 18th centuries, when these diseases of the throat reappeared under epidemic forms, when the strangulating disease, the *Egyptian disease*, carried off very numerous victims, these remedies were forgotten. M. Bretonneau himself, who at the time that he published his *Treatise upon Diphtheria* knew better than any one what Aretus had written about alum, had but little faith in its utility, and neglected to make use of it. It was only at a later period, and upon the following occasion, that he began to repose some confidence in it.

I told him that during the epidemic which I was appointed to examine into in 1828, in the departments forming ancient Sologne, I had had occasion to observe the efficacy of this medicament. I had been informed that in the commune of Marcilly, in Villette, where at first there had died sixty-six persons out of six hundred inhabitants, this frightful mortality had suddenly diminished, and that the scourge during two or three months previous had made very few victims. In order to learn the reason of this happy change, I directed my steps into that region, and having thoroughly interrogated the parish priest concerning everything that had occurred there relative to the matter, I learned that the *white sore throat* (that was the name by which it was called) had ceased to be so severe from the time that the patients had been cared for by a landlady (*aubergiste*) of the country, who had already acquired a great reputation for the cure of diseases of the eyes. The priest was ignorant, however, of this woman's secret. I then asked the woman herself, but she refused to tell me, merely sending me to two patients whom she was treating at that time. One of them was a young lad, a miller's boy, thirteen years and a half old; I went to see him, and discovered in his case the existence of false membranes covering the uvula and tonsils. Three persons had died some time before in the family of the patient; he had been under treatment for five days, and he showed me the gargle which he used, and which was also injected into his throat by means of a syringe. It

was a mixture of alum mingled with vinegar and water. When I left the country the young man was perfectly well. I collected several facts analogous to this, and knowing the secret of the landlady, I told her what I knew; then she confessed to me that she really did make use of alum, and that she had been led to employ it against the white sore throat, because she had seen it cure swine of canker of the mouth, a disease characterized by white pellicles developing themselves upon the gums, and even in the throat, and consequently, presenting with diphtheria a certain analogy which had not escaped the good woman. I communicated my documents and the facts which I had observed to the prefect of the department; this method of treatment was published and printed and sent to the different communes; at the same time I gave an account of what I had seen to M. Bretonneau, who from that time had recourse to alum, which is in fact employed at the present time by all physicians.

There is another medicament indicated in the passage of Aretus, which you see me make use of for all our patients attacked with membranous angina; this is *tannin*. Aretus does not, it is true, make textual mention of tannin, which was not known in his time; but he speaks of galls, the powder of which he prescribed in insufflations and in collutories. Now galls and tannin are the same thing, since the latter is the active principle of the former. Insufflation, washes, gargles of alum and of tannin, are, in effect, powerful topical agents, which may render great service in the treatment of diphtheritic sore throats. Permit me to remind you in what manner we employ it.

We follow the method of Aretus, without any change. Alum in powder is carried as far as the bottom of the pharynx, by insufflating it by means of a pipe. A stick of elder, out of which the pith has been taken, and in default of this, a tube of rather thick paper, will answer the purpose. The quantity of powder is a matter of small moment, provided only that this quantity is considerable; one gramme, two grammes, and over. It is only indispensable, in order that the thing may be properly done, to press down the tongue very vigorously; and this operation, so trifling in appearance, nevertheless demands that we should dwell upon it for a moment. It appears, indeed, an easy thing to press down the tongue and to examine the throat of a child, and yet I am not afraid to say there are few persons who know how to go about this operation and examination, to which the little patients oppose a great resistance. By observing the precautions which I am about to point out to you, it is nevertheless easier to examine the throat of a child than that of an adult, against whose will we could not strive, while we may succeed with the former. It is sufficient to show him at first that you are his master, and when you have made him see that his resistance is useless, he will finally yield. For that purpose you will make him sit down on the knees of an aid, who will hold him firmly; a second person should be charged with the duty of keeping his head steady. When the child struggles and cries, you will take advantage of the moment when he opens his mouth, to introduce the handle of a spoon, and to carry it far down even to the base of the tongue. At this moment the mouth will be opened still

wider, the child being seized with a desire to vomit, and you will see perfectly the bottom of the throat; but if you introduce the spoon only half way the child will take it between his teeth, and you will have the greatest difficulty in carrying it further down. A single operation of this nature will often suffice, so that thereafter the child, understanding that he has to do with one stronger than himself, will readily submit to new examinations. By acting thus you can easily insufflate alum powder, or carry a brush dipped in collutories, in which this salt is incorporated with honey. It is a matter of small consequence, I repeat, if the quantity of alum is considerable; even if the patient swallows a little of it, no harm will be done. These insufflations are to be repeated four, five, six, eight, and ten times during the twenty-four hours, and it is necessary that they should be frequently repeated in the beginning of the disease.

In order that the medication may be still more powerful, we can alternate the insufflations of alum powder with those of tannin; the latter in a dose of from forty to fifty centigrammes. This is in all respects the therapeutics of Aretus, renewed by Dr. Loiseau, of Montmartre.

Latterly we have sometimes, in the case of adults, who more readily submit to this operation, supplied the place of the insufflations of tannin by *inhalations* of water charged with a strong solution of this substance, and we make use of the *pulverizing apparatus* manufactured according to the invention of Dr. Sales-Girons. You are well aware, gentlemen, that this physician, struck by the fact that a vapor of mineral water contained only a little or none at all of its saline mineral principles, conceived the idea of substituting, in place of inspirations of vapor, inhalations made of this mineral water, so to speak, pulverized. This is not the place to speak to you of the means which he has used to reach his aim. I will merely remind you that the manufacturers of surgical instruments have constructed for this purpose a portable apparatus, easily handled at the bedside, and which you have daily seen used in our wards.

The astringent medication is, in my opinion, and in the opinion of many others, so efficacious in the treatment of membranous angina, that if we could always depend upon the manner in which our prescriptions would be executed, I, for my part, would less frequently employ catheters and caustics, to which you now see we have recourse.

The use of *catheters* and *caustics* is not a new thing in the disease which we are considering, though some persons have incorrectly believed that this method of treatment originated with M. Bretonneau; he has never thought of claiming for himself the glory of having invented it. In the last century, physicians had already extolled cauterization with the spirit of salt, that is to say, chlorohydric acid, in the treatment of what they called gangrenous sore throats. Marteau de Grandvilliers said that he had great success with it during the epidemics of which he published the reports in 1759 and 1768; and Van Swieten speaks in like manner of collutories with the spirit of salt, in several passages of his Commentaries upon the Aphorisms of Boerhaave.

Chlorohydric acid is, in truth, one of the most energetic topical remedies which we have at our disposal to combat pseudo-membranous angina. We can, without having anything to fear from it, employ it smoking, pure, absolutely pure, and repeat the cauterization three or four times during the course of the twenty-four hours. In modifying the diseased surfaces it has this advantage over sulphuric and nitric acids, that its action does not extend more profoundly than does that of the nitrate of silver. It is attended, however, with a certain inconvenience which I must point out to you, because in some cases it may lead the physician into error. When we touch with chlorohydric acid a mucous membrane not covered with false membranes, almost immediately after the cauterization we see a white spot appear, which presents all the features of a diphtheritic membrane. This plastic exudation is analogous to that produced by cantharadine and ammoniac, and it is not always easy to distinguish that which belongs to the action of the medicament from the morbid product peculiar to diphtheria; in such manner, indeed, that not knowing whether or not the affection is cured, we are disposed to continue the treatment even when it is useless. To avoid this disagreeable accompaniment, the better course to pursue is to wait after we have cauterized the parts three or four times during the first days, and to substitute in the place of the caustic, insufflations of alum and of tannin. At the end of twenty-four or thirty-six hours the white marks produced by the acids will have disappeared, and we can clearly see what takes place.

The *nitrate of silver*, introduced into common use by M. Bretonneau some thirty years ago, has been more extensively employed than chlorohydric acid. This is readily understood, however; for, on the one hand, there is no practitioner who has not in his pocket-case a porte caustic, while we do not always have the acid ready at hand; on the other hand, the porte caustic is more easily manipulated than the other. But nitrate of silver is attended by the same disadvantages as the spirit of salt, and presents them in a still higher degree, especially when we make use of the stick caustic. In this case, indeed, we produce upon the parts touched the formation of a slight eschar, a sort of white membrane which continues for a day or two, and if the cauterization is often repeated it becomes very difficult to avoid the error which I have just now mentioned. Notwithstanding I had been a long time aware of the fact, I myself very recently fell into this very error. A person came from Chantilly to consult me about his sore throat. I found one side of the uvula and one of his tonsils entirely covered with white false membranes; the other tonsil presented also a spot of the same appearance. The patient did not tell me what had been done for him by his physician, and even asserted that he had not submitted to any treatment at all. He returned home, bearing a letter which I addressed to my honorable confrère at Chantilly, whose attention I called to the thick false membranes which I had seen; I added, it is true, that these false membranes had appeared to me more brilliantly white than usual, but that, as they were broad, thick, and extensive, I feared diphtheria. I finished by giving my opinion as to the treatment to be prescribed. Dr. D. answered me

that these pseudo-membranous concretions were the result of cauterizations with nitrate of silver, which he had used for the purpose of checking an inflammatory angina, in respect to which the patient had consulted him.

In solution, nitrate of silver has none of these disadvantages. If it causes a whitish film, it is only a superficial mark, easily distinguished from the diphtheritic exudation. I usually employ a strong solution of nitrate of silver, one in the proportion of one part to three parts of water. Besides the advantage just named, which it presents over the stick lunar caustic, it has still another, which I will explain to you. Unless made by means of an instrument curved at the end, in such manner as to carry the caustic behind the veil and the pillars of the veil of the palate, and to penetrate even to the epiglottis, cauterization with the stick fastened in the porte-crayon of the pocket-cases cannot reach all the parts, as does the solution. By filling with the solution a sponge placed at the end of a piece of curved whalebone, we can touch the superior part of the larynx, the lower part of the pharynx, and can enter as far as the eustachian tube, and even to the posterior opening of the nasal fossæ, as we are often obliged to do. When the disease is confined to the tonsils, or to parts open to view, the stick caustic, or a bit of lint dipped in the solution, will suffice; but as frequently this is not the case, or at least as there is reason to fear that the diphtheria may have invaded the lower parts, cauterization with the sponge is preferable. It is, therefore, necessary to take a piece of whalebone having a certain curve; it should be round and smooth, and should have great rigidity, or otherwise you may not be able to overcome the obstacles which the resistance of your patients and the contraction of the pharynx will oppose to your efforts. A ramrod of a gun or a pistol, or in default of that, a piece of whalebone from an umbrella, will answer the purpose; you can give it the proper roundness and curvature after having plunged it for a moment in boiling water, or held it a few seconds in the flame of a candle, in order to make it more flexible, and more readily handled; and then, when you have restored its rigidity by dipping it in cold water, it will preserve the form and the curve which you desired to give it. You must then arm its extremity with a very small piece of sponge, which you can fasten with thread, or, better still, with good sealing-wax. In order to cauterize properly, it is necessary to press well down the tongue of the patient, and to hold it firmly pressed down, either with a spatula, or with the handle of a pewter spoon, bent almost at a right angle. You must carry this spatula even to the insertion of the base of the tongue, and draw it forward as much as possible. These details are important; by neglecting them, we are liable not only not to cauterize the parts affected, but also to cauterize uselessly those which are not affected; by taking, on the other hand, all the precautions upon which I do not hesitate to insist, nothing is so simple as to operate upon the pharynx, and to go even to the superior orifice of the larynx—which must always be done when the patient begins to cough and to offer signs of diphtheritic inflammation of the glottis; nothing is so easy as to cauterize even to the posterior orifice of the nasal

fossæ. The sponge should not be too full of the fluid, for then the caustic liquid will hurt the tongue and blacken the teeth. If this does not present serious objections, still this cauterization improper and too extensive is painful, and consequently, should be avoided: it would, moreover, tend to create new obstacles in the operations which you may have to make at a later period; for the patients, if they are children, will be, of course, still more rebellious. Another disadvantage of nitrate of silver is, that it soils the linen of patients with an indelible stain when they spit, as they always do after cauterization, or when they vomit, which often occurs. This is, to be sure, a consideration in appearance extra-scientific, but one which, in practice, is not without importance.

The *sulphate of copper*, whose action is as energetic as that of the nitrate of silver, is attended with none of these disadvantages. Upon the parts which it touches it leaves no mark, and therefore you see that I adopt it in preference, under the form of the saturated solution, which I employ as the solution of silver.

The *actual cautery* has also been applied by a certain number of physicians, and a long time ago. I was myself a witness of this method of practice. It was in 1828, during the epidemic at Sologne, which I have mentioned to you: an old physician of Romorantin, Dr. Bousergent, cauterized the throat of children with a red-hot iron, and for that purpose he made use of the punch with which the wooden shoemakers hollowed out their shoes; he heated one of its ends, and having wrapped the other in wet tow, or having inclosed it between two bits of wood, which served as a handle, he carried his actual cautery to the tonsils affected with diphtheria. I could not help observing to Dr. Bousergent that this application of red-hot iron must be attended with some danger; that he ran the risk, by reason of the intractability of the patients, of touching parts which ought to be respected, and of producing deep and extensive eschars in the mouth, upon the cheeks or lips. To this objection my friend responded, that there was nothing to fear, and that the dread of being burned on the part of the patients themselves caused them to open the mouth wide enough for the operator to act with perfect facility. I witnessed, indeed, some successful results, but these facts were not sufficient to attach me to this method, which I consider too brutal; and, notwithstanding the opinion of my brother doctor, very dangerous in its application, in so far at least as respects membranous angina; nor have the recent labors of Dr. Valentine as yet reconciled me to this method. When the treatment of cutaneous, anal or vulvar diphtheria is under consideration, when we have to do with gingival or buccal stomatitis, matters are entirely different; in these cases, the actual cautery seems to me to be really useful, and you have seen me quite frequently make use of it.

Catheters and *caustics*, insufflations of alum powder and of tannin, cauterizations with the solution of nitrate of silver, or sulphate of copper, or with chlorohydric acid, are also applicable to the treatment of laryngeal diphtheria.

A child begins to have the croupal cough; he has not yet the

croup. The pseudo-membranous exudations are not yet fully formed in the larynx; there is only an incipient diphtheritic inflammation, but before twenty-four or forty-eight hours shall have passed away, false membranes will exist; it becomes necessary from the very beginning to prevent their production, by modifying the inflammation which will give birth to them, by means of catheterism and caustics, carried to the superior orifice of the larynx, and into the larynx itself.

For this purpose, M. Bretonneau and myself adopted the following process. We made use of a tube, which we filled with alum-powder, and having introduced this instrument into the lower part of the throat of the patient, after having properly depressed his tongue, we made insufflations, which we repeated again and again. In this manner, the patient would at length be obliged to make deep inspirations, which would draw into the respiratory apparatus a certain portion of the medicament. In order to cauterize with chlorohydric acid, with nitrate of silver and sulphate of copper, it is necessary to carry behind the base of the tongue, and even behind the epiglottis, a sponge wet with the caustic; when it is once in contact with the aryteno-epiglottic ligaments, upon which it must be pressed in such manner as to express a little of the liquid which it contains, this sponge will provoke convulsive efforts of inspiration, which will cause the medicinal agents to enter into the larynx.

It cannot be denied that these means are very imperfect and very uncertain in their results. *Inhalations of the vapor of chlorohydric acid*, at one time employed by M. Bretonneau, are not more easily used; they are attended, besides, with the serious disadvantage of having excited, under certain circumstances, violent inflammation of the bronchii, and even peri pneumonia, and therefore it has been generally abandoned.

Catheterism of the larynx, by means of which we penetrate into this organ, and even into the trachea, is a more efficacious method. I do not speak of catheterism operated according to the process of Dr. Green, (of New York,) by means of a long whalebone armed with a sponge.

The methods devised during a few years past by Dr. Loiseau, (of Montmartre,) for the treatment of croup, are much more certain. Although, in 1839, Professor Dieffenbach had already applied them at the Charity Hospital in Berlin, Dr. Loiseau is none the less entitled to the honor of the invention, for when the idea occurred to him he was absolutely ignorant of what the German physician had done. Dr. Loiseau arms the first two joints of the forefinger of the left hand with a curved metallic ring, which leaves free the nail-joint and the last articulation. Thus protected, the finger is carried as deeply as possible into the back part of the throat; its extremity raises the epiglottis. Nothing is easier, then, than to carry an instrument into the larynx. Dr. Loiseau sometimes makes use of a curved stick, having a sort of cup at one extremity, in which is placed the solid nitrate of silver; sometimes a hollow sound similar to the laryngeal insufflater of Chaussier, curved, pierced with two holes or eyes, cylindrical and broad at its upper extremity, and diminishing in size towards its

curved end, which is suddenly flattened. We can then operate upon the affected parts, either by introducing into the sound a piece of whalebone, at the end of which is fastened a small sponge filled with the liquid, which is expressed through the openings of the catheter, or by injecting directly into this instrument a caustic solution, as some of you will, perhaps, remember that you saw done in the case of a little girl four years old, a report of which was published in the *Gazette des Hôpitaux*, (31st October, 1857.)

When we think with what facility attacks of suffocation supervene, whenever a foreign body even touches the superior orifice of the larynx, we may well be terrified at the idea of introducing an instrument into its interior; we may well dread this suffocation, and still more, fear that it may be produced by the liquids injected into the air-passages. And yet the only moment of the operation which is painful for the patient is that when the finger seizes upon and raises the epiglottis. As for the catheterism and the injection of even a very considerable quantity of caustic liquid, they are perfectly well endured. These facts may doubtless be explained in this manner. In respect to the catheterism, it is no longer a question of a foreign body which tickles and excites the opening of the larynx, but of a foreign body which roughly traverses it, and rapidly forces the passage. Now if we understand that the sentinels—if I may be allowed to use the figure—placed at the entrance of the air-tube, habitually prohibit the approach of the foreign body which may have accidentally penetrated to it, we can also understand that, the passage being once forced, the sentinels can no longer render any aid, and that then suffocation can take place only so far as the calibre of the respiratory passages shall be obstructed. As to the liquids injected, experiments upon animals have taught us how tolerant the trachea is, and that caustic injections do not often provoke either suffocation, or even attacks of coughing.

We may also, as does Dr. Green, but more surely than he, by directing the instrument along the finger which keeps open the orifice of the larynx, according to the process of Dr. Loiseau, introduce directly a somewhat stiff piece of whalebone, armed with a fine sponge filled with the caustic liquid, and with this apparatus sponge out the larynx, in order to free it from false membranes. When these false membranes resist, Dr. Loiseau detaches them by means of flat and curved pincers.

These methods are certainly very ingenious, and Dr. Loiseau, in submitting them to the judgment of the Academy, (Bulletin of the Imperial Academy of Medicine, 1857, t. xxii., p. 1,139,) has cited quite a large number of cases in which he had obtained marvelous results. On different occasions I was a witness of several successful operations, and among others, in the case of a child, a patient of my friend, Dr. Gros, who communicated the case to the Medical Society of the Hospitals, on the 28th of July, 1858; it was reproduced in the *Union Médicale*, on the 14th of September in the same year. Personally I have but once only had recourse to catheterism; in the case of the little girl of whom I have just now spoken to you. In that

case you have been able to judge of the harmlessness of the operation, and of the ease with which it is performed.

The facts presented by Dr. Loiseau are well worthy of consideration, although perhaps the author has in some respects exaggerated their importance; these cauterizations might, under certain circumstances, render important service.

It remains for me to speak to you, gentlemen, of the *perchloride of iron*, which has been put forward latterly as the specific remedy for diphtheria. Although our experience does not yet seem to us altogether sufficient to entitle us to pronounce upon the degree of utility offered by this medicament, still the cases in which we have employed it have been so numerous that I do not fear to deny to the perchloride of iron the virtues which some have desired to claim for it. It is nevertheless indisputable that it has rendered certain real services, as well in our hands as in the hands of the honorable physicians who in the first instance lauded its virtues. You have seen me apply it as a caustic agent, for the purpose of modifying surfaces covered with diphtheritic exudations; in such cases we made use of the concentrated solution. You have also seen me give it internally, in a dose of from four to ten grammes, in a potion to be taken by the patient during the twenty-four hours. But its action is perhaps no more special than that of other ferruginous compounds, which, like it, are indicated in the general treatment of the disease. Its extreme solubility, however, gives it a certain advantage over the others.

I have insisted, gentlemen, upon the uselessness and the dangers of antiphlogistics, which, for my own part, I have absolutely proscribed in the treatment of diphtheria. In passing in review various other medications, I have endeavored to show you that mercurials and alkalines—in so far as they are alterative remedies—present more disadvantages than advantages. I have also told you that certain medicaments, such as the sulphate of potash and *polygala senega*, which had for a time been supposed to possess anti-diphtheritic properties, had justly fallen into oblivion. I have laid peculiar stress upon the subject of blisters in order to beg of you never to use them, this method of treatment being the most deplorable, the most perilous of all. I have finally reached this conclusion: that the topical medication, by means of astringents, catheters and caustics, was, as I have been taught by a long experience, the medication *par excellence* for diphtheritic affections; but I have not pretended that with it alone we could overcome the disease.

General treatment should play in this disease a leading part. This treatment should be essentially tonic and reparative, as in all diseases in which the forces of the economy seem to be primarily disturbed and depressed. *Nutritious diet* occupies the front rank in this treatment, and the more severe the disease the greater is the necessity of nourishing the patients. One of the most alarming signs for the prognosis is lack of appetite and disgust for every sort of nourishment. You must endeavor to overcome this in every possible way; and to accomplish it, I do not hesitate to proceed sometimes, with children, even to threats. So long as the appetite continues good the chances of cure

are great. The choice of food is, however, in no respect invariable. We are often obliged to satisfy in certain individuals the strangest caprices of taste. When in pseudo-membranous angina there exist pain and difficulty in swallowing, I give semi-solid food, thick soups, puddings, chocolate, creams, soft-boiled eggs, &c., and as soon as I can, I come to a more reparative meat diet.

The pharmaceutical agents which I make use of are preparations of quinia and of iron. Most generally I give to patients the yellow powder of cinchona, in a dose of from one to two grammes in a cup of black coffee, in such a manner as to conceal the bitterness of the medicine, and to facilitate its reception into the system. For those to whom this preparation is repugnant, and when I wish to obtain a more prompt action, I substitute for the powder of cinchona the sulphate of quinine, given in the same manner in coffee. I give also the wine and the syrup of cinchona.

In respect to the preparations of iron, I prefer those which are most soluble; the perchloride of iron, of which I have just now sopken, the syrup of the citrate or of the tartrate of iron.

EDITORIAL AND MISCELLANEOUS.

— The blight of civil war still rests upon our beloved land. No gleam of light as yet, alas! points to a speedy settlement of this heart-rending result of a most causeless suicidal rebellion. Indeed, as time passes on, the shadows are even deepening and lengthening; and sadness enough is brought to the heart of every one. One prediction, however, that has from the beginning been very frequently reiterated and generally believed, as to the terrible effect a Southern campaign must necessarily have upon the health of our soldiers, has, we are happy to say, proved entirely unfounded, during the summer months even. In fact, while the sanitary condition of the National army has been and is quite satisfactory, the Southern troops, against all calculations, suffer greatly from disease. This remarkable and unexpected difference must depend upon the great attention paid to military hospitals, camp hygiene, to the clothing, feeding, sheltering, care and comfort of each man on our side, and upon more means to carry out the requirements of the case; and is greatly due, no doubt, to the exertions of the Sanitary Commission.

We transfer the following from the *American Medical Times*, Sept. 21, 1861:

The Sanitary Commission continues to labor with great energy to

extend sanitary reforms among the troops, and with great success. At a recent meeting it added to its force the following Assistant Secretaries: Drs. J. T. Newberry, J. H. Douglas, and J. Foster Jenkins. These are excellent appointments. Dr. Newberry is one of the members of the Commission. Dr. Douglas is well known to the profession as the able editor of the AMERICAN MEDICAL MONTHLY, of this city, and will bring to the discharge of his duties that knowledge of sanitary science, and that energy in the execution of the plans of the Commission, which are requisite to success. Dr. Jenkins, formerly of this city, but more recently a reputable practitioner at Yonkers, N. Y., enters the service thoroughly imbued with the spirit which should animate every agent of the Commission. The following distribution of duty of the Assistant Secretaries has been made:

To Dr. Newberry, the departments of Gen. Rosencranz, Gen. Fremont, and Gen. Anderson. Post-office address, Cleveland, Ohio. Dr. Newberry will establish hospital depots at Wheeling Va., (in charge of C. D. Griswold, M.D.,) at Cincinnati, (in charge of W. H. Mussey, M.D.,) and at Quincy, Illinois.

To Dr. Douglas, the columns under Gen. Banks and Gen. Dix. Post-office address, Baltimore, Md. Dr. Douglas will establish hospital depots at Baltimore and at Frederick City.

To Dr. Jenkins, the columns under the immediate command of Gen. McClellan and Gen. Wool, with hospital depots at Washington and Fortress Monroe. Post-office address, Washington, D. C.

Contributions of hospital stores may be made to either of the above depots, or the Woman's Central Relief Association, No. 10 Third Avenue, Cooper Union, New York.

Contributions of money may be made to the Treasurer, Geo. T. Strong, Esq., No. 68 Wall Street, New York.

— A subscriber has sent us the following reflections, suggested by our motto: *Non Progredi est Regredi.*

Although it may be vain in the desire as well as profitless in the result to endeavor to solve all the enigmas embraced in the medical science, still it is a laudable quality inherent in the human mind to grapple with questions which carry with them the characters of novelty or abstruseness, in order that, submitting them to the test of a minute and rigid analysis, it may haply deduce some hitherto unrecognized fact or principle which will not only amply recompense the intellectual labor expended upon it, but (which is of infinitely greater importance) may also effectually revolutionize universally received

doctrines, and thus become the permanent basis of a system that is destined to survive as long as the science itself, or its usefulness to the physical necessities of the human race, is acknowledged. The discovery of the circulation of the blood may not have *directly* added to or diminished one jot from the brief span of mortal existence, yet the truth itself is eternal, and of inestimable value, fraught as it is with innumerable blessings to our race, by furnishing the physician a steady and unerring light while unraveling the complex and mysterious phenomena of disease; or guiding him in the choice and application of medicinal agents, by which fatal structural changes are prevented, and the disturbed physiological functions of the organism restored to a state of normal activity and equilibrium. The chimerical theories which reigned supreme to the time of Harvey, respecting the circulation, fled like frighted spirits before the first dawn of this established fact; and scientific men only marveled why such a truth so simple in its essence, so easy of demonstration, should have remained so long unsolved, or at least, so imperfectly sketched by a few antecedent writers, as to only render the obscurity which involved the subject the more palpable and embarrassing.

All problems, however difficult, become intelligible to the most ordinary capacity when elucidated by a master-mind; but, unfortunately, all men are not capable, or even willing to acknowledge the superiority of the teacher through whose instruction they have been enabled to soar, as it were, beyond the contracted limits of their own sphere—and either basely attempt to sully his hard-won laurels by calumny and misrepresentation, or attribute his success solely to the fortuitous operations of a blind and uncalculating chance. All men, according to such critics, have an equally legitimate right to a full participation of the common gift of fame, and consequently, that it amounts to a species of arrogant presumption for any one to enjoy, or lay claim to, a larger share of celebrity than the most worthless drone encumbering the earth. It is such obstacles as these which frequently beset the honest investigator in the path of scientific research, and make him quaff of the bitter dregs of envy before he has even tasted of the tardy cup of well-merited approbation. All men, it is true, (and this is the proper version of the text,) have it in their power to prove useful, if not brilliant, in the several spheres allotted to them, should they only industriously cultivate and apply the talents wisely bestowed upon them in varying measure by the bountiful Creator. It is this reflection that often stimulates the thoughtful mind to extraordinary exertion, and causes it to surmount difficulties and achieve labors which it

otherwise could never have accomplished. This is far preferable to assailing the fair reputation of successful competitors in the peaceful struggle, and building up an ephemeral notoriety upon baseless, visionary ruins.

The science of medicine furnishes an ample field for the accomodation and enterprise of all: with many of its regions untrodden and unexplored; teeming with riches and resources more remunerative and enduring than the whole collective wealth of the universe—of which all may participate and enjoy without fear of encroaching upon the possessions of others, or of eventually exhausting the general fund; and yet the laborers who enter it with the genial feelings of brethren, are more envious and intolerant of each other's success, than the most sordid miners grubbing in the ravines and mountains of a golden land. It would seem as though the very atmosphere they breathed within its sacred precincts blighted all the noble and generous impulses of their nature, and made them forget or disdain the glorious cause in which they had enlisted, and the common destiny which all should patiently, but heroically, fulfill.

One consolation, however, the party aggrieved may well derive from such degeneracy: it is, that while his assailants reap no lasting benefit from their merciless onslaughts, *his* reputation remains not only materially intact, but becomes the more enviable and conspicuous from the severity of the ordeal through which it has passed. This fact should rightly shape the course of all physicians in their relation with their professional brethren, and make them from policy, if not from higher motives, attend punctually to the arduous task set before them, and allow others to follow the same useful and inoffensive tenor of their way. *Age quod agis* is a motto of divine excellence, and can *never* be too highly appreciated in theory, or too faithfully carried out in practice.

To the unprejudiced and serious mind of the observer, while quietly scanning the existing state of medical science, much seems to have been achieved by the persevering industry and genius of cotemporaries and predecessors; much still remaining in an imperfect state of advancement; and much so obscure, so utterly undefined, as to chill the ardor of the most resolute and ambitious from approaching a labor so dreary in appearance, and so seemingly sterile in final results. But, then, he must consider that the whole field presented to his view offered at one time even a more dispiriting prospect; with here and there, perhaps, a lucid spot, which gleamed like an *oasis* in a vast desert, and which cheered the ancient pioneers of the art to tread

more slippery ground, ascend more towering heights, and explore more hidden recesses. The knowledge derived from these attempts fortunately survived the men who achieved them, and descended as a precious inheritance to succeeding generations, who were thus enabled through the facilities it afforded, and according to the tact and energy they displayed, to accomplish much that had been left undone, and to trace out *new* labors for their followers. This order of things is truly providential; for were it otherwise, were knowledge to become extinct with each revolving period, man would inevitably be left to grope his way in mental darkness, and science would dwindle from a glorious reality into an evanescent dream.

In our own day we fully realize the immense advantages accruing from this *cumulative property* of knowledge; and, therefore, to be simply content with the ample riches bequeathed to us, without any effort on our own part to augment the general fund, would be practically to revert to that state of utter confusion, that epoch in the past, when all the sciences were comprised in one, and that one even in a condition embryonic. This would be exceedingly like the conduct of the man who buried his gold in the bowels of the earth, lest any should haply be lost by its legitimate use; and ought justly merit a graver condemnation than was even awarded the latter. Comparing the state of medical science as it existed all over the world some two or three centuries ago with its present flourishing condition, we should scarcely believe that thinking men could seriously entertain such absurd doctrines respecting the pathology of many diseases, and employ such extraordinary and fanciful remedies for their eradication as were then in vogue; and yet the contrast they afford may not be more striking and impressive than that which is destined to be furnished between our own knowledge and that of a few generations hence. What are to us mysteries at present shall, in all human probability, be to them matters as familiar as the simplest facts. We should, then, endeavor to make our age as illustrious as possible, that it may loom conspicuously in the horizon of the future, and be pointed to with delight and admiration by posterity, as forming a golden era in the history of the progress of medicine. B. K.

Notice to Publishers and Correspondents.—Quite a number of valuable communications received, as well as book reviews, have been placed on file, and will be published as soon as possible. In the mean time, we beg correspondents, publishers, and the senders of the different State Societies' Transactions to have patience with us.